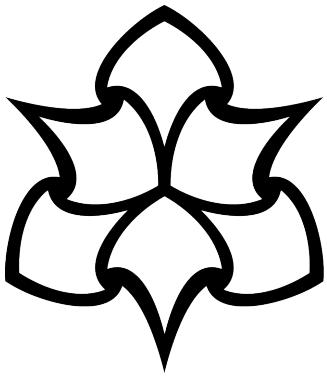

Becoming Researcher: Navigating a post-qualitative inquiry involving child participants and wearable action cameras.

Lucy Caton, BA (Hons), PGCE, MEd

A thesis submitted in partial fulfilment of the requirements of The Manchester Metropolitan University for the degree of Doctor of Philosophy

Education Social Research Institute

The Manchester Metropolitan University

January 2019

Abstract

The thesis sits at the cross section of arts-based, social science and 'post' philosophical inquiry to craft new video research techniques involving video technology. Drawing on the work of Deleuze and Guattari (1987 / 2014) the thesis shows how my own ontological assumptions about children and childhood were challenged, leading me to question conventional social and developmental paradigms. The thesis thinks with video technology in making felt the collective potential of events, where children and cameras open the field to the more-than of objects and subjects performed.

The study offers experimentation and analysis of video research and practice, where different configurations of a GoPro camera - head-mounted, chest-mounted, and 'roaming' - are employed. I describe the methodological considerations of the different GoPro configurations and argue for a need to further theorise the visual ontologies that underpin the choices and production involved. The inquiry re-engages with abandoned video footage to generate multiple animations of the classroom that operate beyond human privilege alone. I demonstrate the ways in which the inquiry disturbed the ontological security of my researcher's gaze, and led me to new understandings of children and their relations with digital technologies. The GoPro camera and resultant video are theorised as performative-material-discursive entities that I articulate through the conceptual language of 'assemblage' (Deleuze & Guattari, 1987/2014).

The thesis offers the techniques of '*video data sensing'* and '*turning over'* the video data, felt at the level of experiments with digital pixels, to decentre the child in the action and provoke a 'haptic' (Marks, 2000) visualisation of the classroom space. These new techniques emphasise the unfolding nature of '*doing*' video research, where knowledge remains detached from accounts of subject-driven-agency in order to ask what the video does and how it does it. The video analysis extends beyond simply labelling the child and their capacities in new and alternate ways, as it attempts to complicate humanistic notions of joy, harmony, surprise and cheekiness, to recognise how child subjectivities emerge out of the movements and rhythms of bodies, formlessness and chaos. The thesis contributes to new forms of knowledge production and new ontologies for both visual research methodology and alternative

conceptions of ‘the child’. I do so, by presenting a new manner of engaging with video ‘data’ through a ‘post’ theoretical lens.

Acknowledgements

I would like to thank my supervisory team, Professor Maggie MacLure and Dr Abigail Hackett. Their diligence, attention to detail and general approachability have been exceptional. From the start they have demonstrated genuine interest and enthusiasm about my research and having the opportunity to be excited, curious and creative in the company of Maggie and Abi has kept me motivated and inspired. Thank you.

I remain forever grateful to the children, their curious minds and unwavering approaches to participation have been integral to the creation and synthesis of new understandings.

Dedication

To Fraser, Sebastian and Martin

Contents

List of Figures and Tables

List of video clips

Video clip 1: Footage from static camera positioned on central table,

Example of linear and discernible content, children playing around central table and talking with the teacher (July 2016)

https://vimeo.com/258578229 Password **Lucycatonthesis2018 (copy and paste into Vimeo link)**

Video clip 2: '*Hashtag Vlog Dude'* filmed on the hand held GoPro camera, example of a child's (video-blog) filmed around the space of computer club (May 2017)

https://vimeo.com/257133026 Password **Lcatonthesis2018 (copy and paste into Vimeo link)**

Video clip 3: https://www.youtube.com/loganpaulvlogs Logan Paul Vlogs, is an American Teenage YouTube vlogger with more than 17,000,000 subscribers worldwide. He is famous for his 'do-it-yourself' documentary film making practice that details his daily social encounters. (**access on YouTube following the link above)**

N.B: The symbol ( ) is used within some quotations to indicate that words have been omitted. Deleuze and Guattari citations appearing as (1987 / 2014) indicate the date of the original publication followed by the edition cited.

Chapter One:

Becoming Researcher: Navigating a speculative inquiry

> *The question is not: is it true? But: does it work? What new thoughts does it make it possible to think? What new emotions does it make possible to feel? What new sensations and perceptions does it open in the body? The answer for some readers, perhaps most, will be 'none'. If that happens, it's not your tune. No problem. But you would have been better off buying a record* (Massumi, 2014:xiv).

Preamble

This is a study of encounters between a small group of children and a GoPro camera situated in an after school computer club. The research was originally intended to be a more conventional study of the potential of this relatively new video technology for children's learning and for child participatory visual research, but the focus changed quite radically as I began to re-think notions of agency and the nature of human and non-human interactions. The coming chapter sketches some of the conceptual and methodological context within which the thesis develops and I describe the empirical study in more detail in chapter 2.

The key tenet of the study will be to experiment with the methodological potential for a GoPro camera and what the resultant video footage offers in knowing child subjectivities through a non-hierarchical arrangement of the world. Inspired by the work of Deleuze and Guattari (1987/2014) and the overarching language of 'assemblage' I hope to contribute more broadly to the wider field of education video research methodologies in recognising how human kind is imbricated with 'more-than-human' and 'other-than-human' worlds (Taylor and Hughes, 2016). Furthermore, I hope to use experimental visual techniques to understand what is made to matter when technology, bodies (human and otherwise) and materials are mutually constitutive in creating the video phenomena at hand.

The thesis draws from Deleuze and Guattari's (1987/2014) philosophies of 'assemblage' at a cross section with post-humanisms; there has been much debate about the compatibilities of the two ontologies, which I later discuss in more detail. Despite the various misgivings, I have drawn parallels to recognise human actors as complex and open-ended subjects, a concept that helps to think across established

human-centric categories. Drawing on both philosophical conversations was useful to invent new conceptual schemes in recognising the unity and interdependence of the human with other material forces and entities.

For a new researcher, the key has been to determine the confusing and 'over-lapping' terminology within the field of 'post' philosophies that function through disparate histories, knowledges and arguments. In the coming chapters, I attempt to articulate some of the key characteristics and conceptual thinking that has influenced my thinking, writing and 'doing'. The fundamental ontological shift has been to recognise the world through the language of 'assemblage' that constitutes the inter-relations of bodies (human and otherwise). This has entailed breaking through the subject and object dualities that render human intentionality and knowledge over all other matter. The decentring of human kind has been a critical factor, which has provoked recognition of the 'other-than-human' and 'more-than-human' (Taylor and Hughes, 2016), in which bodies, matter, things, objects, sound, light, colour are equally constitutive in forming realities. The test has been to observe what these disparate relations might 'look' like in child participatory video research and to develop concrete techniques that disrupt the ontologies of humanism with its power-producing binaries. Furthermore, I hope to identify the value in recognising what comes to matter through such relations.

Coming to a speculative inquiry

In the coming section, I explore the position I adopted as a researcher to locate the inquiry in dilemmas that have in the past perplexed me within traditional, academic approaches to understanding children as socially constructed subjects that are often contained within object/subject, adult/child and life/machine dualities. Such binaries have kept children firmly in their marginalised childhood place with a human-centric focus on discursive, social power, identity and critical agency (Murris, 2016). My experiences as a childhood studies lecturer and humanities student have become characterised and dominated by a variety of different framing practices for debating children and childhood, specifically, using visual resources. I have struggled within what I found to be certain prescriptive practices that, as suggested, contain notions of childhood within social and developmental theories. I often questioned the 'knowledge' such theories and practices implied. What I have recognised using visual methods to promote and develop knowledge in the field of children and childhood studies are

those individual interpretations that are heavily influenced by histories, values and wider ontological standpoints of the spectator. I have learnt to recognise that initial perceptions are never stable and such readings often assume precedence over the child's and spectators' own performative understanding and re-imaginings of themselves within the visual imagery and 'analysis' processes.

What I aim to critique are those dominant views of 'the child' where agency resides in the privileges of the all-knowing subject. This is the case, because mistaken assumptions regarding a social/developmental child have made it possible to re-present the world through 'knowledge systems that claim knowledge is not embodied and particular with a knowing subject whose eyes represent while escaping representation' (Haraway, 1988:581). For example, binaries such as child/adult, life/machine and object/subject have given rise to a notion of objectivity that has historically, culturally and socially remained in a privileged position.

Normativity assumes that visual imagery accurately and objectively records children's movements and reflects the real world as it is, thereby making objective knowledge about children in educational scenarios. The thesis looks to contribute to assumptions that video-practices and digital recording technology are no longer passive, observing, measuring machines but are productive and performative in how knowledge is created.

What I am proposing in developing a new methodological approach to child participatory video research is not to completely disregard 'human-centrism' and social/developmental theories of 'the child' as 'defunct' or 'meaningless'. Instead I imbricate these systems of knowing as operational in how we might extend and challenge the ontologies of humanism with its power-producing binaries. I therefore question the role a GoPro camera and the video footage can play in decentring notions of childhood to creatively make felt the difference between the divides of subject/object, child/researcher, life/machine and fantasy/reality.

I have attempted to navigate the field, finding meaningful and creative ways to interpret visual materials of children, yet prior to this doctoral study I have done so from a human-centric stand point, which has contained my thinking and doing. As I argue in this thesis, this practice has closed down problems rather than opened them up. Such ontological perspectives have failed to reach beyond human-centricities built upon

models that fall short of illuminating other 'non-human' and 'more-than-human' entities mutually imbricated within our encounters. As such, one aim of the thesis is to disturb my own ontological assumptions in relation to how I have previously responded to different visual materials of children and childhood. Inspired by the post-structural philosophies of Gilles Deleuze and Felix Guattari (1987/2014), who recognise matter and meaning as coexisting in complex 'assemblages', the inquiry examines how children, a GoPro camera and the resultant video footage work as performative, material-discursive entities to illuminate multiple animations of the classroom. By this I mean, how might operationalising the conceptual language of assemblage (Deleuze and Guattari, 1987) work to theorise the materiality of the camera and resultant video footage and, furthermore, help to produce concrete video-based practices that creatively break down the dividing lines of binary thought. The thesis contributes to recognising art and philosophy as co-existing in an overlapping practice of making and thinking (Manning and Massumi, 2014). I bring these ideas into conversation and question, how do the camera and the video help to open up the concept of assemblage and offer a concrete video-based practice that devises its own modes of articulation beyond language.

My inquiry sets out to function as an experimental space to develop a new methodological approach that theorises the GoPro camera and the resultant video footage as mutually imbricated within the process of child participatory video research encounters. As such, my work recognises child participants through an alternative ontological lens that attunes to the human figure as enactments and not descriptions (Murris, 2016). By this I mean, we must begin to engage with 'the child' in the imagery beyond the containments of language and recognise a body that is constituted of many different flows and intensities, questions, discourses and theories that intersect and diverge, often felt in moments of indiscernibility, slippage and unorthodox practices with the camera.

Situating my inquiry

I locate the problem in the wider field of child participatory visual research and, as such, I contribute to conversations (Hultman & Taguchi, 2010; de Freitas & Palmer, 2015; Taguchi & Palmer, 2016) that aim to reach beyond those normative ways we perceive visual representations of children and childhood through dominant social and developmental theories. For example, as discussed, it is often assumed that videos

accurately and objectively record children's movements that reflect real world scenarios as they are, thereby making objective knowledge about the human subject in view. Such ontological understandings reside in human-centric agency that presupposes what forms of intelligence, truth and expertise count. To challenge such notions, de Freitas (2015) explains that there is a need to examine video research for how it is materially implicated in the creation of knowledge and how the unique nature of digital video footage might create new social and cultural relations.

The thesis draws on de Freitas' arguments in contributing to child participatory video research that breaks down distinct object/subject divides in assuming the camera and the footage are not passive, observing instruments but are fully imbricated in how knowledge is generated. We might look to understanding new social ontologies through a non-hierarchical arrangement of bodies (human and otherwise), where the 'object' and 'subject' are not set apart but happen at the same time.

We need to engage on a deeper level with the particular social phenomena of child participatory video research in classrooms that goes beyond social and linguistic concepts, because studies that employ visual methods from a 'flattened' ontological standpoint of the world are few in number.

This thesis is based on the assumption that there still remains a need for theorising video as a three-way encounter, between participants, digital technology and researchers. To theorise the video as a three-way encounter, I suggest that decentring and reconstituting the child subject is necessary. This work is a contribution towards addressing how concepts might be mobilised at the intersection of arts-based methods and post-qualitative inquiry. My work is inspired by contemporary research conducted through *'Sense Lab'* (Manning, 2015, 2016) that operates as a transdisciplinary space for crafting techniques of relation to determine how events transpire so that they belong to the emergent collective and not the individual organiser (Manning, 2015). As a result, the thesis explores the possibility of crafting new visual techniques to make felt how the presence of children within video footage might be thought of differently beyond the social. Furthermore, it considers the question of how children present a relation between themselves and the site of the classroom using the GoPro camera, where I explore how digital technology shapes their lives but equally how they shape the use of digital technology.

As discussed, I take up the challenge set by de Freitas (2015) who states that video data has now become the most common form of data for educational research and that such practices are often applied without reflection or reference to philosophical or historical work in film and media studies. I specifically draw (see Chapter 4) on early scientific cinema conventions to trace the lineage associated with those dominant visual discourses still prevalent in education video practices. Such practices, de Freitas argues, render a human body as a series of motor mechanisms that can be coded and used to generalise and standardise how child subjectivities ought to perform and progress socially and developmentally within the classroom space. I attempt, therefore, taking up the challenge of de Freitas, to re-think the human body in radically new ways, where the body is no longer the mechanical body, the body that is used for control, but a body that forces us to consider what is also concealed (de Freitas, 2015).

The thesis is intended to contribute pragmatically to practices within child participatory visual research, drawing on empirical work that highlights how video technologies and the subsequent video produced might be used to access children's world views and contribute to studies that understand human subjects beyond the containments of human-centrism (Springgay and Truman, 2017; De Freitas and Palmer, 2016). As I discuss in later chapters, I am interested in how children work with researchers to create meanings together, how, for instance, they use artefacts and video technologies in ways that shed light on how subjectivities might be imbricated with, and considered in relation to, place, space and materials. However, the focus of my discussion thus far resides in human (child) imbrications and so the originality of my work responds by disrupting such positivist manners of knowing to recognise 'other-than-human' and 'more-than-human' (Taylor and Hughes, 2016) entities at play when children, cameras and researchers operate within a shared space. By this I mean, I do not set out to completely abandon or dismiss dominant notions of a socially constructed child, instead, I attempt to make felt the overlap that resides between human-centric and non-human-centric viewpoints. This means, not determining one notion against another or positioning both as singularities in order to recognise the advantages and disadvantages of each. The process is about activating the 'differential that holds their difference in lively suspension' (Manning and Massumi,

2014:231) that creates less clarity and more uneasiness in making felt how their collective potential operates.

The thesis' contribution to child participatory video research resides in the innovative use of a post-qualitative methodology. This is a methodology that addresses the hierarchical, human-centric models I mentioned above through 'rhizomatic' (Deleuze and Guattari, 2014) rather than arborescent, hierarchically-arranged systems, where arborescent thought always places the human subject and her concerns 'above' those of non-human entities. This is a 'flattened' and open-ended methodological approach that works to say something more about the mutual imbrications of the children, camera, environment, video footage and the researcher. In the chapters to follow, therefore, I use 'rhizomatic' models to help recognise the world through non-hierarchical, open-ended arrangement, in a way that prompts further interrogation of my own researcher 'gaze' and the heterogeneous connections that are made. My work draws on personal anecdotes, moments of 'slippage' and indiscernibility within the video footage, disregarded field notes and emergent relationships, to offer a glimpse into the flows, materials and bodies that shared the same space in the classroom. I have had to adapt and respond to a new way of 'being' with the phenomena rather than ways of 'knowing' the phenomena.

Rhizomes as tentative holding places in child participatory video research

I think with the notion of a 'rhizome' (Deleuze and Guattari, 1987) that prompts the idea of multiple possibilities within our research encounters; encounters that are driven by open-ended connections, influenced by personal histories and those wider links to the choices we make as researchers. In this sense, my post-qualitative inquiry attempts to trace the multiple possibilities dependent upon ways I make sense of the field and the encounters I have in the research site with various people, objects, materials and those other non-human forces at play. Equally, I am intrigued by research possibilities and how outcomes might be shaped in what also *fails* to take place during our encounters. Therefore, my research is driven by my desires to 'slow' (Rautio, 2017) the process down and re-engage with missed opportunities and moments of ambiguity that might be disregarded at first glance. Furthermore, 'slowing' the research process down enabled me, as I discuss in later chapters, to connect with the video phenomena in a sensory manner that moved beyond linguistic description.

By this I mean, engaging with digitally manipulated footage in a new manner helped to make felt the uneasiness and indiscernibility that unfolded when suspended in the overlap of the conceptual space between human-centric and non-human-centric standpoints. This new sensory manner of engagement with the video footage, as I will later explain, is a concrete technique that creates a space for differentials to be felt. For example, I do not want to 'frame' the action in the traditional sense but generate opportunities 'for creative participation (that) takes its own shape, direction, and momentum in the course of the event' (Manning and Massumi, 2015:4).

In the coming chapters, I articulate the child and camera relations for their creative force, not in order to discuss their attributes as single entities or to evaluate one in respect of the other 'but to propose a co casual third-ness of exploration that can be generative of new modes of practice' (Manning and Massumi, 2015:4). My analysis extends beyond simply labelling the children in new and alternate ways as it also attempts to 'free' children from those prefixed, humanist characterisations (behaviours, emotions, feelings) that are so often used to interpret and frame them. I draw on abandoned footage recorded on the GoPro camera in the classroom to offer a change of direction and to register the uneasy, untimely and non-linear content as a route to understanding the lively intervals within the events through a new singularity (see Chapter 5). In doing so, I theorise the camera and the resultant video through experiments with digital pixels as a concrete technique to knowing what a body can become if reconfigured through a 'flattened' (Murris, 2016) ontological perspective that does not privilege the consciousness and the individuality of the intact human subject. To think with a 'flattened' arrangement of the world offers a way of decolonising notions of child subjectivity, which provides less clarity and understanding yet makes felt the overlap between object/subject, human/machine and child/adult and is, therefore, productive of its own emergent knowledge. The thesis draws on 'rhizomatic' systems, not in order to contest the individuality and functions of those singularities (child, machine, researcher, video and camera) but to recognise their open-ended and collective potentials in their coming togetherness. I hope my methodological driven experiments move towards 'freeing' the child from those social, cultural and pedagogical discourses that have kept children in a subordinate place for so long. I will argue that recognising the child subject working in co-existence with other bodies, materials, intensities and technologies opens a route to disrupt those human-centric

ideas that have influenced our ways of making sense of such classroom-based video research. The processes of recognising what came to matter in the video footage beyond those initial human-centric presumptions was not an effortless journey but imbued with competing tensions, which I will later detail.

Breaking 'free' of research questions

My study was guided by the overarching and somewhat general question *'What are the methodological potentials for a GoPro camera in a school-based computer club'?* This single question may seem broad and non-specific; however, it has offered me a space to adapt, re-position and evolve as part of the speculative and unfolding inquiry. In this sense, I have been free from the containing nature of a set of specific questions constrained by their own constructions. For some, this might be viewed as a 'weakness' of research proper, yet I will argue in Chapter 3 that such open-ness is a necessary departure for working the realms of a post-qualitative paradigm, where attuning to unfolding events through an open-ended and responsive mode of engagement has become a necessity.

The question itself evolved over a significant period of time. Indeed, at the start of the project, I formulated several research questions in attempts to frame, contain and provide some sense of mastery over the phenomena at hand. At this juncture, and although somewhat uncomfortable, I present my initial questions below. I do so as I believe it is important as a way of highlighting the two very disparate ontological standpoints that I have navigated. For example, the initial research questions are useful in recognising some of the human presuppositions intrinsic to my thinking at the start of the project that I subsequently realised had closed the inquiry down rather than opened it up.

Initial research questions

1. How do children between the ages of 7 - 11 use play and experimentation when computer coding to develop freedom of thought and new relationships with knowledge?
2. What happens when kids, code, computers and other agents 'plug-in' through material – affective 'assemblages'?

3. How do emergent thinking and new subjectivities come into being through the process of computational thinking in the context of an out of school computer coding club?

My intention at this juncture is not to imply that research questions are no longer productive for research more broadly, but rather, I wish to demonstrate that my 'post' inquiry suffered as a result of implementing such questions. I suggest, in hindsight, that the second question has operated implicitly in the thesis and is compatible with the notions of assemblage that are central to the Deleuze-Guattarian framework. However, the series of questions as a collective led me to understand the world from a human-centric standpoint, as they constructed technology and 'computational thinking' as instruments and concepts of 'betterment' and 'improved' understanding of children and their cognitive processes. Assumptions were inherent in the formulation of the questions that contained both human-centred and specific terminology as a route to understanding the phenomena at hand. In this sense, the questions already contained the answers in thinking with the hierarchical arrangement of children as 'not-yet-ready adults' (Prout, Jenks & James, 1998). As a result, the pursuit of 'betterment' became the central concern. I made broad assumptions regarding the concepts of play, experimentation, freedom and knowledge based on my adult-centric viewpoint and personal experiences of children and childhood. In this sense, the questions operated through what Deleuze and Guattari (2014) refer to as 'arborescent' systems. These are systems that work through binary logic where 'one operates in the object, the other in the subject' and such notions 'dominate psychoanalysis, linguistics, structuralism and even information science' (2014:4). As such, my questions slowly evolved over time, as did the ways I conceptualised my relationship to them. In hindsight, the changes synthesised my growing and deeper engagement with the philosophies of Deleuze and Guattari and the ways I came to question those hierarchical and arborescent systems that structured and contained the world.

As discussed, inspired by the work of Deleuze and Guattari (1987/2014), I have approached the inquiry using 'rhizomatic' systems in response to the question '*What are the methodological potentials for a GoPro camera in a school-based computer club'?* Deleuze and Guattari (2014) suggest the rhizome 'includes the best and worst', in the sense that 'any point of a rhizome can be connected to anything other, and must

be' (2014:5). This is very different from an arborescent system that plots an order and fixes positions, as rhizomes continually 'establish connections' (2014:6) and only consist of lines. The rhizome functions in a manner that allows experimentation in an open-ended way to create opportunities for 'creative participation, which is encouraged to take its own shape, direction and momentum in the unfolding event' (Manning and Massumi, 2015:4). My aim in the following chapters will be to make felt how theorising the camera and the video footage using experimental visual techniques might open the event to its differences and give further meaning to the video footage that is generative of knowledge.

What my thesis is not

The test of the success of my analysis will not be its generalisability or statistical significance, but whether it provokes, reanimates or redirects thought. I hope that this will be achieved in such a way as to provide impetus for further reflection on how alternative methodological approaches might be useful and valued in education video research with child participants. Like many PhD students, I have often struggled to communicate what my work is about. For this reason, I would like to make clear here at the outset some of the things my work is not, in the service of bracketing out potential misinterpretations. First and foremost, my work is not utilitarian: by this I mean it is not formulated to provide a radical critique of education video research that could be fed into the process of policy formation and improve the efficiency of school education. I have produced a very situated amount of knowledge about how a 'flattened' (Hultman & Lenz Taguchi, 2010) ontology might operate in video research practices with children in the classroom. From this, I am able to make methodological assertions about how we might experiment with technology and visual practices in recognising bodies in new formations with digital devices. My empirical work contributes to a growing field of research (Manning, 2015, 2016; Springgay & Truman, 2015, 2016; de Freitas, 2015; de Freitas & Palmer, 2016) that recognises the implications of decentring human subjectivities by mobilising concepts through filming and video analysis techniques used in real world scenarios. In this sense, the thesis is pragmatic in offering researchers a route to experiment with a digital GoPro camera and what such experimental techniques with the video footage might offer in knowing multiple animations of a classroom.

In my field of work, there is a constant temptation to declare oneself as an advocate or antagonist of the school system. Yet, it has been my intention to work beyond binary thought and resist the allure of associating with one mode of thinking over another. In this sense, I have attempted to operate within a different critical space and it is within this space that my thesis resides. My thesis is not about education, schooling or children *per se,* but rather about helping researchers and practitioners consider alternative visual methodological practices that might break down human-centric terminologies and pre-fixed ways of knowing children in school settings. My work is not concerned with the educational usefulness of the technology on offer and how the children learn with technology. This would no doubt make a worthy investigation but falls out of the scope of my methodological study. My focus is instead upon the micro-political behaviours, movements and discursive practices that emerged as the child and camera co-existed around the space of the classroom. This has had the methodological consequence of re-focussing my attention away from the formalities of the classroom, for example, the 'measured' learning process, and towards the nuances in children's behaviours and discursive practices, as they filmed in mutual imbrication with the 'more-than-human' and 'other-than-human' in each encounter.

Repetition, detours and new beginnings: Mapping the moves in my thinking

At this juncture it is pertinent to highlight how I have structured the thesis to articulate the broader moves in my thinking whilst navigating a Deleuzian theoretical framing. I have used language in the opening paragraphs of each chapter to represent new beginnings, detours and iterative approaches that have helped to turn my experiences and thoughts into knowledge making processes. For example, I included, first person pronouns, 'I', 'Me', 'Myself', as a technique to locate my thinking, not as a single agent or source of concern but to explore how my researcher voice becomes entangled within wider assemblages of (human and otherwise). Indeed, this has been a research process, where I have re-attuned to the midst of events and in doing so, come to realise how engaging with new starts and moments of ambiguity have been important aspect of the writing process, particularly, within the opening pages of each new chapter. As such, the thesis can be understood as falling into three parts. The first part is dedicated to finding alternative ways to conceptualise the child drawing on a broad range of theory and empirical work in consideration of and alongside my own

experiences working with children and cameras in the classroom. The middle part of the thesis acknowledges a need to move beyond simply re-describing the child in new ways that have continued to contain human-centric and hierarchical ways of knowing. The final part of the thesis moves into a space where I experiment with the potential for different practices of relating to the video phenomena, that offers different ways of understanding and relating to children.

The thesis not only maps my attempts to de-centre the child in the action, but also involves a careful mapping of my own personal journey through the research. This has been a tricky affair, wondering how best to articulate the tussles and tensions of navigating a post-qualitative inquiry. Lather and St Pierre (2013) ask how researchers might become in becoming. To respond to this quandary, as discussed, I have used iterative language and recurring reformulations of the research to come, to highlight the ways in which the research required me to continually re-attune to my own positionality as a researcher. This recurrent re-setting of the path of the thesis exemplifies how I have resided with/in/alongside theory in order to negotiate the world of children and digital cameras. This has enabled an alternative way to document my journey that has become an empirical field of inquiry in itself. As such, my thesis is always becoming in the same way that my researcher journey is always becoming, always incomplete and always in the midst of being formed.

Thesis outline

This introductory chapter has sought to delineate the evolution of the research question and to frame dilemmas that have, in the past, perplexed me as a teacher and student working within the field of social sciences. In addressing concerns, I have recognised the dominant ontologies that have promoted and characterised certain childhood developmental paradigms that leave little consideration for our mutual imbrications with the other matter and materials. Therefore, I use the inquiry as an experimental and conceptual play space, as discussed, to begin to 'unpack' my own ontological assumptions and recognise child subjectivities in video research, through an alternative ontological prism.

Chapter Two introduces the school setting, the child participants and the specific classroom space in which the research was situated. I structure the chapter to offer a

personal account of the discrete moments that unfolded, between the children and I, within the introductory sessions. I do so, not to frame events but to wonder how going to the absolute limits of thinking with and beyond child subjects must remain heterogeneous for their collective potential to be felt (Manning and Massumi, 2015). I present short vignettes from field notes that illuminate specific instances where the children and I familiarise with the technology, the GoPro camera and our mutual participatory roles. Such moments came to matter and they enabled me to attune to the 'process' of videoing with children per se from inside (Barad, 2007) the event. This has helped me to say something more about the collective forces (human and otherwise) within each encounter. For example, I assimilate the smaller instances that detail the inquiry's strengths as a holding place for possible potential.

Chapter Three aims to characterise my writing and thinking moving forward throughout the thesis, whereby I re-engage with moments of indiscernibility, and abandoned video and field notes to address the 'how' of using concept as method. I conclude that focussing on moments of 'slippage' and 'indiscernibility' is one route to creating temporary pauses and quiet periods of reflection that are significant and generative of new knowledge. I devote Chapter Three to familiarising and experimenting with post-qualitative concepts that come together in thinking with conventional qualitative research terminologies and practices. I do so to recognise how each infuses the other as part of the wider assemblage that sits at the 'intersection of making and thinking' (Springgay and Truman, 2017), in order to expose their important difference and to make felt their collective potential. Manning and Massumi (2015) suggest it is this difference, this active differential in the overlapping of binaries, for example, subject/object, human/machine, fantasy/realty and child/adult, that moves the event into the 'third space' (Manning, 2016).

Within this 'third space' (Manning, 2016), I synthesise the 'how' of using concept as method and, in doing so, address some of the emergent complexities in negotiating life beyond human privilege. I present traditional qualitative terminologies as a route in, as I do not see my 'post' work as a complete abandonment of traditional methods. In doing so, the chapter aims to carve out an alternative visual methodology that begins to 'unpick' the seams of those entrenched ontological and epistemic human-centred research practices. I outline the significance of Deleuze and Guattari's (1987/2014) philosophies and articulate the usefulness of their concept of

‘assemblage’ as a route to narrate multiple animations of computer club through the lens of a GoPro camera.

In Chapter Four, I delineate the disparate field of visual research methodologies that I present in three distinct parts. The three-part chapter operates as a whole to assimilate the ongoing process, whereby I reviewed different scholarly work to respond to questions and considerations that emerged throughout the duration of the study. Thereby, engaging with the literature was an ongoing affair and reading such disparate texts worked ‘rhizomatically’ (Deleuze and Guattari, 1987/2014) as I made connections, detours and re-connections along the way. The literature is presented in three parts - *Part One: Child participatory video research: an overview of approaches*; *Part Two: Early Scientific Cinema and the movement image; Part Three: Video experiments in post-qualitative inquiry.*

The first part introduces some of the broader approaches to visual methods with child participants. I then turn my attention to those studies using film as a way of co-producing data with child participants, where knowledge emerges in the field through a process of collaboration. I show that much of this recent work is derived from a child-centred approach that defaults to human-centric terminologies in order to make meaning. I reconsider such human-centric standpoints to forge an alternative pathway that seeks to theorise the agency of the video camera and the resultant video data itself as mutually imbricated within the phenomena at hand.

Part two of the review takes an unlikely detour to trace the origins of nineteenth and twentieth century scientific cinema and those early attempts at recording bodies in movement. The review at this point is not a critique of media theory or a mapping of the complex histories of visual technologies. Instead, the utility of this detour within scientific cinema is to recognise how early visual practices were experienced and became meaningful in shaping the world but at the same time were being shaped by the world. Engaging with the academic heritage of visual research practices has shaped my own research using a Go Pro camera, to consider the device as something more than simply a tool to capture reality in a more efficient and convenient format.

In part three, I draw on empirical work that foregrounds ‘the material and embodied nature of our intellectual habits’ (Rosiek, 2013:694). Specifically, I draw on visual research that considers the material and embodied nature of our encounters and, as

such, troubles those ‘norms’ and embedded ontological assumptions about what is real and right in the world. For example, as previously discussed, it is often assumed that video-based research accurately and objectively reflects children’s movements and represents real world scenarios as they are, as such, making objective knowledge about the child subject in view. My thesis opposes how we have previously conducted such research with children, where I position video-practice as active and not passive, as productive and not simply observational in how knowledge might be generative within each filming encounter.

I focus upon those studies that use Deleuze and Guattari to analyse visual practices in educational settings with child participants, and as such are directly relevant to my own concerns using a GoPro camera. I argue that such studies are few in number and there still remains a need for theorising video as an encounter between participants, technology and researchers.

Chapter 5, I organise around several still frames extracted from an ‘abandoned’ sequence of film recorded on the GoPro camera. I examine how the children, camera and resultant video footage work materially and in relation to create the phenomena at hand. I carry out experiments by manipulating the pixels in the source frames to create a ‘haptic’ (Marks, 2000) visualisation and a route to illuminating multiple animations of the phenomena at hand. I synthesise those other (human and non-human) entities at play, drawing on Deleuze and Guattari’s (2014) inspired conceptual language of ‘assemblage’ that transforms both researcher and child subjectivities in the process.

The disruption to the video data and ‘analysis’ continues in Chapter 6, where the central concern focuses on video extracted from the chest mounted and the roaming GoPro camera. I make visible alternative understandings of child participatory education video research that is outside normative views of representation focussing on the what and the how. Instead, I pay attention to the children’s doing (of) filming from a human decentred standpoint, where the filming process is performative that makes expressive the socio-material-discursive encounters in thinking with Deleuze and Guattari’s philosophies of ‘lines’.

In Chapter Seven, I draw the thesis to a close and summarise its value and contribution to the wider field of child participatory video research methodologies. In doing so, I synthesise its strengths and limitations whilst considering the lessons learnt from the process of being a doctoral student using a 'post' theoretical inquiry. I conclude the thesis by proposing an outline for future research around several emergent questions that have come to light throughout the doctoral study.

Chapter Two:

Becoming Researcher: With/in classroom-camera-child encounters

The aim of the chapter is to delineate the classroom space in which the research was situated and briefly outline the design of the empirical study. Whilst my efforts will be directed at providing a broader picture of the research setting, namely the primary school and the children who were involved in the study, I am conscious that my writing will invariably be biased towards my experiences, relationships, values and ideals. Therefore, I use the coming pages to re-engage with the research site in a two-fold manner; first to dedicate a space to saying something more about the school and the children who welcomed me into their computer club each week and secondly to draw from the intensities and nuances that emerged through my research encounters in the classroom that came to matter. As I later discuss, what became apparent were the micro-political behaviours that unfolded in my mutual dealings with the children and technologies and through the rigours of the ethical consent process. I balanced the practicalities with wider accountabilities in respect of the children's wellbeing. For example, I recognised the value of children's voices in the research whilst simultaneously questioning what 'participation' meant as a term and practice within my post-qualitative inquiry. I suggest such accountabilities and questions could not have been formed or conceived beforehand but emerged through a renewed attentiveness to ongoing engagements. In this sense, the chapter aims to set the scene for the remainder of the thesis in recognising my own inscribing practices. I do this by drawing on personal anecdotes and field notes made within the pilot study, as the children and I tentatively negotiated our relationships with each other and the camera equipment.

Identifying the research site: Pilot study

The study was set within a Greater Manchester primary school that welcomed children from mixed races and culturally diverse backgrounds. My depiction of the school functions as a starting point of a journey that is concerned with detailing my relations

and experiences at the primary school that was located in the North West of England. I draw on diary entries and photographs, documented within the pilot stages (April - July 2016), as a way of narrating the journey through those early days in the setting.

I first introduced myself to the school during early 2016, where the deputy head teacher was in attendance at a local technology and computing seminar hosted by the council to promote online child safety and awareness. I reasoned that my attendance would hopefully produce fruitful relationships with local schools who might be interested in participating in my forthcoming PhD research.

The deputy head teacher at the primary school was extremely interested in taking part in the research and immediately invited me to attend the school's computer club enrichment session the following week. The school enrichment programme helped to broaden students' experiences by providing them with diverse artistic, cultural and educational opportunities that built upon the traditional academic content taught. Delighted at the prospect, I immediately started to formulate the pilot study and familiarised myself with the relevant university consent and ethics documentation, in order to progress my study to work with the school. The pilot study commenced in April 2016 and completed in July 2016. It was an intense but productive period of time that enabled both the children and I to build a culture of trust and belonging that functioned through a collaboration of curiosity, questioning and excitement. In the coming section, I elaborate on a few moments during the introductory session with the children that, on reflection, seem significant and circumstantial of wider unfolding events. Furthermore, such moments have come to matter in understanding how the children, GoPro camera and I were mutually imbricated in the unfolding video phenomena at hand.

Re-attuning to my researcher positionality working in co-production with children

Prior to the start of the pilot study, as discussed, I was invited by the deputy head teacher to introduce the research to the children at the start of the session. The inquiry focussed on a group of children aged between 7 and 11 years who had chosen to participate in computer club as an after school enrichment activity. Several enrichment activities ran simultaneously on a Tuesday evening each week and this often meant there was a choice to be made between two preferred clubs. There were fifteen

children in attendance at the introductory session. Over the course of the term we welcomed several new children and said farewell to others who decided to pursue other interests. Despite the flux in numbers, there remained six core participants who were present for the duration of the inquiry over the course of the pilot study and the main study that commenced in September 2016 until July 2017. The aim of computer club was to provide the children with the opportunity to use technology in ways that they might not be able to do during their regular ICT lessons in school. Children often worked in groups or individually on the PCs that lined the perimeter of the classroom. There was one large, central table that children used to congregate around and work individually or in groups with the various pieces of electronic equipment. In order to make the introduction more appealing to the children I decided to bring along some of the technologies that I would eventually be sharing over the course of the study. The equipment included a GoPro camera and selection of different body harnesses to attach the camera into various configurations. In addition, I decided to hire from the university teacher training department several boxes of Lego WeDo[1], which worked with Scratch coding software, a free online programme designed for 7 to 12 year old children. I was fortunate that the school had the software installed on their computer system prior to my arrival. The children were familiar with the software and ultimately informed me of its various functionalities during the course of the pilot study. I explained to the children that I was not a technology specialist and that my main aim was to use the GoPro camera to film the activities in computer club. I present a short extract (below) from my field notes, detailing the events of the introductory session in school.

> *The children are all instructed to gather around the central table in the classroom. I am introduced as a special visitor to the school, the children stare, wide eyed, anticipating my first words. I am acutely aware of my strange presence in their familiar surroundings. I feel a rush of uneasiness and excitement on both our parts. I am dressed quite casually not the typical 'teacher look', this intrigues the children. I wear trainers and a t-shirt, my hair tied up. I wonder what the children must think. The children are distracted by the Lego boxes piled high on the table, their curiosity*

[1] Lego WeDo is a model building kit designed specifically for the education sector in which Lego bricks are modelled and coded via a USB wire to function in association with Scratch digital software.

ignited and a low murmur starts to rumble. I quickly introduce myself before the chatter becomes too loud and I explain why it is important that they understand why I will be joining them each week. I outline their involvement in the research process and what they will have to do, if they wish to join in. I explain that the research will be visually informed and they will have the opportunity to film with a GoPro camera that will be attached to their bodies with a chest or head harness. I also point to the static tripod that I have set up and explain that I will film from a fixed place in the corner of the room. I show them the GoPro camera and they are eager to hold it. I deem it important that a child's decision to take part in the workshops is based upon their own informed reasons. I make it clear about my role in the research activities, how meanings and knowledge may emerge, when and where the activities will take place and what will happen to the information that has been video recorded. I also explain that if they don't want to participate that is absolutely fine or if they have any questions they can ask. I tell the children that the next bit is really important and they need to listen very carefully. I tell them that I will take film of them during the project. I explain that I might use these photos and films in presentations that I make to other teachers about the research. I ask them if they have seen photos of children in videos in school before. They say they do, I tell them that I will use photos of them in presentations similar to that. I keep the introduction brief as I can see their impending excitement at the prospect of tipping out the Lego WeDo kits onto the table top. I do not film within the session, as the consent forms have not been sent home. The key points I addressed are outlined in an information sheet and ethical consent form compiled for the children and their parents. (See Appendix 1 & 2) (Caton field notes, April 2016)

As outlined in the field note above, I told the children that they could tell me if they did not want particular films of them to be shared with others. This control over their image and their appreciation of the different types of audiences seemed important to them. The open conversations with the children appeared to build the relationship on a culture of trust and respect that resided in their voice being heard and responded to; their opinions mattered to me. In the sphere of the classroom this was an important

aspect of our productive relationship. Within the final few months of the research, the GoPro camera was adapted and used as a roaming device, as I will later elaborate. The content of the film was often spontaneous, character driven and filled with laughter and cheekiness on the children's part. This showed a playful side to their characters. In some cases, the children did not want any film to be used that presented them in a way that was not consistent with the school's expectations of them. For example, one of the boys had recorded his two friends searching for inappropriate pictures (bums and poo) on Google search engine. The children all laughed and immediately began to cover the images on the screen with their hands as I slowly walked over behind them. I found that the children wanted to protect each other in instances like this. The children asked me not to show that specific sequence to other people, as they were embarrassed. I agreed to comply with their wishes. Allowing children to have autonomy over what was shared and what was kept private proved valuable for me in making sense of what the children perceived as acceptable or unacceptable content. Such moments were useful; however, I was sometimes left in a conundrum over how to integrate the rich content produced by such encounters in a way that also respected the children's requests for privacy. I wanted to maintain the integrity and individuality of each child yet avoid presenting them in a manner in which they might not want to be seen by a wider audience. The children were aware that their names and school name would be anonymised but they were also cautious and aware of their behaviour on camera and whom this might be shared with. They were acutely aware of how the film could portray them if perceived in a certain way.

What might become of 'ethics' with/in child-camera-researcher encounters

In the coming section, I reflect upon the unanticipated complexities involved in the divisive nature of the parent and student consent process that determined which children would ultimately take part in the research. I re-engage and attempt to explore how my response to certain situations unfolded and subsequently had implications for me as a researcher. I do this by drawing on early field notes that function as tracings of my thinking in 'doing' (St Pierre, 2011; Taylor, 2016; Springgay and Truman, 2017) and attempt to illuminate some of the ethics and micro-political behaviours faced when attending to child participants in a classroom research scenario. I draw on de la Bellacasa (2011), who discusses the 'ethico-political' concern of caring in research that might affect the way we observe and present techno-scientific agencies, things

and notions. For example, how does caring about the relationship between the children and the camera technology impact upon the knowledge construction, in relation to what is excluded or included within those power dynamics that unfold. Haraway (2007) explains that ontology is continuously in the making, in the process of becoming-with. In this sense, an ethics of care within speculative inquiry might be considered as a collective inscription of bodies both human and otherwise. My work, in this sense, aims to move beyond the figure of a lone thinker, and practise 'thinking with care' (de la Bellacasa, 2012) as a vital requisite of collective thinking in emergent and interdependent worlds.

Here, I describe the process of gaining the children's and parents' written consent and how the rigours of wider political formalities helped to build trusting and open relationships with the school and parents involved. Yet, I describe the implications of 'performing' out the consent process in the classroom and the effects of having to segregate the children into participants and non-participants that worked as a powerful material-discursive force within the widening assemblage of bodies (human and otherwise).

Despite the tensions raised in the classroom, as discussed below, the ethical procedures outlined the research aims to parents and children and proved to be a transparent mode of communication that instilled trust from the outset. Approaching the study from a post-structural standpoint, I recognised all child bodies to be mutually imbricated within unfolding events, whether on film or not. As such, tensions and questions emerged in having to negotiate the pragmatics of two disparate ontological and epistemological paradigms to ensure the wellbeing of the children. At all times, the children's wellbeing was my central concern but this was recognised through a decentred human point of view. I wanted all the children to feel that they were fully informed about the aims of the research and that they had a space to ask any questions if they were unsure. I produced a parent and student information sheet and consent form (See appendix 1 and 2) detailing the aims of the research and what the video footage would be used for. Parents and students were asked to give written consent for the use of any images produced as part of academic presentations, hard copy and online publications. Facilitated by the class teacher, the consent forms were sent home and signed by parents and children and the whole process took several weeks. Prior to issuing the consent forms, I had received initial verbal approval from

the head teacher and the computer club teacher to participate and film each week in school. They too were made aware of the aims and objectives of the research and how the research materials would be used. Involving children from the start and maintaining transparency and an open culture helped the children, I would argue, to develop a sense of their rights and responsibilities within the research. This involvement was important to them and enabled them to create a standpoint and to frame the direction of the research. Involving children in the development of relevant and meaningful visual research methods supported them in communicating their perspectives (Stirling and Yamada-Rice, 2015). For example, as the study progressed, the children were vocal in how and what they wanted to film with the GoPro and, as a result, the camera was used in several configurations (head harness, chest harness and roaming). I later detail a time line for the various configurations and uses of the GoPro camera over the course of the pilot and main study.

Despite the children's initial written and verbal consent, the wider consent and regulatory process privileged the parental voice over the child's and unfortunately the practicalities of such functioned outside of my control. For example, several of the children wanted to participate in the filming, however, their parents withheld consent at a later date. The process was a stark reminder of the wider political and ethical containments of using 'post' research in collaboration with child participants that was imbued with hierarchical adult presuppositions and viewpoints and, as such, jarred with my 'flattened' ontological perspective of the world. Unfortunately, due to the methodological scope of the research and the restrictive nature of the consent process, I have not been able to consider and operationalise more deeply what ethics of care might become through a speculative inquiry. In addition to the standard ethical process as outlined above, I considered ethics from a deeper perspective and what care within a post-qualitative inquiry might involve. De la Bellacasa (2001) presents a feminist vision of care to encourage and problematise the possibility of translating '*ethico-political'* caring into ways of thinking and representing things. Drawing on de la Bellacasa, I recognised the process of care in relation to different forms of agency that operated in the wider assemblage and which '*voices*' were less/more valued and could be challenged through the prism of a decentred human-centric viewpoint.

For those children without consent, I prompted them to sit at the side of the classroom and work on the surrounding PCs out of view of the static camera that was mainly

directed at the central table. I asked the remainder of the children, who had consent, to gather around the central table in view of the camera. I recognised the immediate impact as I divided the children into two groups according to the consent process. The implications of this division for all children far extended the immediacy of the event and could not have been accounted for as a prior ethical consideration. I present a short extract from my pilot study, in the form of field notes that touch on the immediate singularity and differential (Manning and Massumi, 2015) within the event, to activate it, make it felt and generate further problems. In opening up the texture of the event, I ask what does the field note do and how does it do it?

> *I feel anxious about dividing the children into certain areas of the classroom that either remained in or out of view of the static camera. I tentatively ask the teacher which children are able to stand in view of the camera. Of course, the process is made easier as the teacher identifies those children who are not permitted to feature on the film. She loudly booms a list of names across the classroom, the children are familiar with such authoritative tones and immediately respond and self-organise into the allocated spaces. I feel a wave of guilt, my involvement with the camera means having to divide the group of children into distinct smaller groups. The process is divisive, yet out of my control. The Lego WeDo model building activity resides on the central table surrounded by approximately ten chairs for those children who have been granted permission for filming. The children opt to stand up around the table and await instruction. Individual PCs are positioned around the perimeters of the classroom and I politely ask those children who had not gained consent to work there out of view of the camera lens, unfortunately, they are not able to join in with the planned activity. Some look disappointed as they walk slowly to the outside edge of the room. The teacher feels that it is important for all the children to know about the research. I am happy to do this, yet I share my concern about having to split the group and the implications of this division on the long term and immediate relationships emerging within the classroom. (Research field notes, April 2016)*

Presenting my field notes from the pilot study led me to reflect upon what it means to be ‘ethical’ when we do research with children. I understood that being ethical was about avoiding undue harm to others as part of the research process (Dahlberg and Moss, 2005). Of course, I wanted to avoid situations causing upset or a sense of isolation for the children involved. However, there were times when, despite all my best efforts, this felt unavoidable due to the filming restrictions that forever dominated and influenced proceedings. The field note has prompted me to question what more can be said about an ethics of care through the prism of a post-qualitative lens. How does this tendency in research practice move thought about care and responsibility for others to its limits? I suggest it is not about putting ethical terminologies into practice or practices of care into terminologies but that a ‘method is required for an activation of the overlap’ (Manning, 2016:27) that creates the conditions for their differentials to be felt (Manning and Massumi, 2015:4). For example, how we might recognise different types of agency within the overlap of a human-centred and decentred standpoint. By this I mean, not to throw out a critical standpoint but to consider what types of ‘voices’ are valued (de la Bellacasa, 2011) and to engage with forms of exclusion, inclusion and power that dominate the child and digital technology relationship.

At the start of the pilot study, approximately fifteen children attended computer club each week and I got to know each of them well. After participating in the activities for a number of weeks, I also realised that there were specific children who I would really like to feature more regularly in the filming process based upon the criteria that I had established from my adult-centric viewpoint. For example, the initial filming sessions were focused around six particular children that I had made efforts to get to know; and equally they conversed, asked me questions and told me about their lives. These children were chatty, engaged and motivated and I appreciated their ongoing involvement. The informal chats were often caught on the static camera that filmed in the corner of the room. I found myself asking the children to stand in certain positions around the central table, in view of the camera, knowing from my ‘adult’ viewpoint it would eventually make interesting footage to analyse. However, my viewpoint was not only from an adult perspective but also a researcher with hitherto unexamined assumptions about what counted as ‘good’ data and which children might be more likely to provide this. The process of filming with the static camera felt at times

manipulated, stilted and contained and became dominated by my adult presuppositions. For example, what I thought the research video 'should' look like became the central concern in the early stages. I recognised the need for a shift in my thinking and 'doing' of the research, in order to disrupt my ongoing sense of control and 'mastery' over proceedings.

Conducting the visual research in a classroom ignited some of my doubts and irritations that highlighted the wider containments and prescriptive practices that measured success and achievement in such school settings. I felt vulnerable at times working in a space that attempted to break through some of the socio-cultural norms that rendered children and researchers in certain ways, whilst simultaneously adhering to strict practices and policies that governed such work. My ontological stance recognised bodies, matter and discourses as related to one another in non-hierarchical ways that challenged notions of agency and this sat in stark dichotomy with the daily practices of a school institution. For example, moving beyond the discomfort of a child / adult hierarchy meant recognising the different dimensions of political life unfolding in the classroom where children, teachers and researchers lived their lives temporarily in the same space. This meant appreciating the difference between the official policies that aimed to prioritise certain ideals of childhood education and care and those politics unfolding between the children, teachers and researcher that involved people as mutual, political subjects (Millei & Kallio, 2016). I had also been left wondering how ethics could move beyond its focus upon a duty of care for research participants, to consider a duty of care towards the researcher (Procter, 2014) struggling with some of these questions whilst working the realms of a post-qualitative inquiry.

What came to matter with/in child and camera encounters

Establishing and recognising a rapport between the GoPro camera and the children offered a way to engage with micro-political behaviours and responses that emerged. By this I mean, issues of power, agency and autonomy that unfolded. For example, I questioned what the micro politics were of using the technology in the classroom and how the relationship with the children performed out in certain ways. This is a politics as an everyday encounter that unfolds in communities and that recognises the child as a political subject from birth until death (Millei & Kallio, 2016). Furthermore, how were issues of power, agency and autonomy accounted for in recognising human and machine as equally imbricated within each encounter. It was hard not to bracket out

the excitement of the children as they familiarised themselves with the GoPro camera and the various harnesses on offer. The children developed odd practices with the GoPro in its various configurations and it is worth taking time to consider the implications for the unfolding relationships, which I later expand upon.

The cameras used during the fieldwork were GoPro Hero HD®, designed mainly for the extreme sports market on account of their curved aperture and wide field of view, but selected due to their small size, rugged design, rubber waterproof casing, variable mountable configurations and high definition output. In the coming section, I describe the use of the GoPro camera in different configurations across the course of the fieldwork, as well as the process whereby the GoPro camera moved from head to chest to hands. In the pilot, children sometimes wore the camera attached to a head harness with the intention of bringing the camera close to the participant's field of view. This was an alternative procedure also achieved by others using cameras fitted to infants' headwear (Sumsion et al., 2008; Elwick, 2011), but proved unfeasible here due to the children's complaints about the harness causing discomfort. The head harness was discarded by the children in the club due to its clumsy intrusion and because, when the children ran around, the resulting film made for unpleasant viewing as the constant movement of the camera induced a sense of disorientation bordering on nausea. Once the main study had commenced, in October 2017, the chest harness was the preferred approach for collecting video footage. This provided a much more stable film to watch. The chest harness allowed the children to wear the GoPro camera on the upper torso using a system of interconnected, elasticated, straps that adjusted to fit the children's different shapes and sizes. I present an extract from my field notes to offer a nuanced account of our mutual dealings with the various pieces of equipment.

> *It must be a somewhat peculiar sight for the children to see me clunking and clattering my way into the school computer club, my arms filled with camera equipment, boxes and a rucksack hanging off each shoulder. I have done this many times now, and for a few of the children, my arrival signals something special. I'm the camerawoman, the researcher, the one who brings fun technology to play with. I busily go about setting up the GoPro cameras; one fixed to a tripod on the central table and the other fixed in a*

> *chest harness, which ultimately makes its way around various child participants, during the course of the session. My role involves making notes and helping the children to adjust the harness strap depending on which child wishes to film with it. (Field note, June 2016)*

The children were always happy to participate in the filming process, demonstrated through their willingness to wear and exchange the chest mounted camera, albeit for around 10 minutes each, before making it quite clear they were 'tired' or 'bored'. Filming with the chest mounted camera lasted for approximately six months. I was confident that the children and I had formed a relationship where they were able to draw attention to any discomfort whilst wearing the device, or highlight any anxiety towards their ongoing participatory role. I remained attuned to the children's behaviour, firstly in relation to their wellbeing and secondly to remain attentive to how the perpetual theory/practice divide unfolded. Springgay and Truman explain that to normalise methods through standard phenomenological practices 'assumes the 'how' of research is separate from the theory or thinking of research' (2018:205). As such, I recognised my thoughts within different ontological arrangements as I negotiated the 'how' of the theory and practice divide in the classroom. For example, I found it difficult to bracket out the children's behaviours and not allow this to dominate my thoughts, while at the same time theoretically considering the children as decentred subjects within my inquiry. Filming with the children in computer club in this manner of experimentation required a new type of ethics that emerged through a process of sustained listening within a community of care that built a sense of belonging as the event unfolded.

After approximately six months, it became apparent that the children's interest in wearing the chest mounted camera had begun to wane and they stopped using it, as discussed above. Thereafter, the camera transformed into a device that could be freely passed around in an improvisatory manner. Together, the children and I coined the device '*roaming cam'* to help differentiate between the use of the chest mounted and the static devices. The approach to using the camera as a roaming device had not been planned and came about as a 'happy accident' in a moment of improvisation. The research shifted to acknowledge a new type of child and camera entanglement, one that did not involve my researcher physical presence to manipulate its operation.

I discuss in later chapters the implications for this change and what the footage from the roaming camera opened up by approaching it through a Deleuzian-inspired (2014) theoretical lens.

The static camera served as a permanent piece of apparatus throughout the pilot study and within the initial stages of the main project. In the early weeks, I spent time finding the best possible vantage points in the classroom, in order to film proceedings from my adult view. I was fully imbricated within the curation of the filming process, driven by my researcher presuppositions and desire to gather 'relevant' video footage each week. I had overlooked what I thought 'relevant' video might contain and furthermore how to go about 'analysing' large quantities of digital footage. I soon realised the practice of moving the tripod camera around the room began to impede relationships. I suggest that my involvement in moving the camera around on top of the tripod perpetuated those hierarchical arrangements associated with the surveillance of children. I wondered if a handheld, mobile camera would have been more suitable to follow the action around the room. I conceded that the process of filming with a handheld device might have been too physically intrusive, due to the practicalities of weaving my adult body around the children's personal space.

The children seemed comfortable with the static camera, yet their inquiries about the device were extremely rare; little did they tamper with the device or attempt to manipulate it in any way. I had made explicit attempts to inform the children about the aims, purpose and intentions for the study, and I also disseminated child-friendly reading material to take home. It was only in the concluding weeks of the study that the children began to show a real interest in what the films were actually for and how their involvement aided this process. One child asked if his images were going to be '*put in a book'*, to which I replied yes, '*if that is still ok with you'?* The children considered the physical camera device mine and not theirs, in so far as they knew that the Manchester Metropolitan University owned the device, as I had explained this to them at the start. Yet, ownership of the digital video footage became an ongoing conundrum whilst theoretically negotiating a post-qualitative inquiry. I questioned the ambiguity of the ethics involved and the possible need to re-work the implications and terminology associated with the video footage, 'ownership', 'participatory' process and the 'consent' documentation. For example, an emergent question related to how

'ownership' might be pragmatically re-constituted in a non-hierarchical arrangement of human and non-human entities, where forces were distributed through the flows and materials that moved in relation to one another with no one single, privileged subject.

Mapping the developing nature of the camera – overview

The table below summarises when the field work took place, and which of those months the GoPro camera was used in a particular way (head harness, chest harness, static, and roaming device). Highlighting the patterns, routine and changing use of the camera is important to provide a sense of the developing nature of the research design, influenced entirely by the children's changing needs and desires.

Field Work (Dates)	Head Harness	Static (tripod)	Chest Harness	Roaming Camera
Pilot Study April 2016 – July 2016		X		
Main Study Sept 2016 – Oct 2016	X	X		
Oct 2016 – March 2017		X	X	
April 2017 – June 2017				X
June 2017 – July 2017				X

Figure 1 – Table of camera configurations over the pilot study and main trial

This chapter introduced the children, the school and the types of activities that were carried out each week in computer club. I have presented these accounts, using short vignettes, detailing some of the nuanced behaviours that unfolded between the children, the technology and I as we came to familiarise with each other and the formalities of the research process. In doing so, I have provided an overview of the various configurations that the GoPro camera was used and discussed the implications on the disparate unfolding relationships. However, the chapter moves beyond simply describing the children, the setting and those emergent relationships in consideration of official politics and policies that aim to contain certain ideas in

childhood education and care. Instead, I have drawn attention to a new type of ethical consideration that recognised a type of politics that unfolded in accounting for the children and I (researcher) as political subjects (Millei and Kallio, 2016), who brought our different histories, experiences and understandings to the research. Furthermore, I have addressed how different backgrounds operated in mutual relation with the technology and other non-human artefacts. In the coming chapter, I begin to challenge notions of agency, power and autonomy than flowed through the human/machine and child/researcher encounters, by drawing on disregarded field notes and personal anecdotes. In doing so, I attempt to punctuate my thinking and doing of a post-qualitative inquiry, drawing on concrete examples that make felt the tensions in negotiating the world from a decentred human view point.

Chapter Three:

Becoming Researcher: With/in a Deleuzian inspired methodology

The forthcoming chapter has two main foci; first, I discuss the major theoretical influences that draw from the work of Gilles Deleuze and Felix Guattari (1987 / 2014), and second, I relate this work to contemporary developments in the field of post-

qualitative research, which itself has been influenced by Deleuze and Guattarian philosophies, as well as new materialisms and post-humanisms. The chapter draws on both sets of philosophies to recognise the human actor as a complex and open-ended subject to think across established human-centric categories. Drawing on both philosophical conversations has been useful to invent new conceptual schemes in recognising the unity and interdependence of the human with other material forces and entities.

Immersing into the concepts of Deleuze and Guattari

The forthcoming section introduces some of the key concepts of Gilles Deleuze and Felix Guattari (1987/2014), in which the thesis has its philosophical roots. At this juncture, I feel it is important to outline how I came to engage with the concepts of Deleuze and Guattari and, in doing so, communicate something of their qualities and functions that have inspired and driven the research.

I was first introduced to Deleuze and Guattari's work '*A Thousand Plateaus'* (1987/2014) whilst working at Blackburn University Centre. At the time, my colleague was in the final stages of his PhD, an endeavour far from my mind at that moment due to the birth of my first son. I noticed the book '*A Thousand Plateaus'* (1987) lying on his desk and asked for a quick browse. Having had no previous training in philosophical thinking or 'post' research practices, I became immediately entwined, lost, disconcerted and drowned in the rhythms of a new theoretical 'language'. I was fascinated at the capacity of each sentence to incite a physical jar in the flows and rhythms of my once familiar and consistent reading pace. I immediately re-attuned to the 'doing' of my reading practices in conversation with Deleuze and Guattari's work. I 'fell' into many philosophical 'rabbit holes' as the text provided no sense of linearity and resisted generalisation and totalisation. Frustrated and bewildered, Deleuze and Guattari's philosophies worked as irritants that pulled at the seams of my sense of command and 'mastery' of self and others. A 'bone in the throat', Maclure (2006) suggests, that was hard to metaphorically 'spit out', yet it coerced a persistent dalliance in the messiness and chaos of each unfolding page. Reading evolved into 'irritating method' (2006:732) and, as such, it provoked my thought beyond familiar structure and composure and I intended to delve deeper into understanding the world through a new ontological prism.

As discussed, I recognised it was my 'doing' of reading that enabled and/or disabled my ongoing engagement and understanding. I attuned in a different manner to make connections with my other senses of touch, sound and a haptic vision (Marks, 2000; de la Bellacasa, 2009). My approach drew from features in common with arts-based research, for example, attention to human and material encounters that exceeded representation in language and, instead, attuned to other senses than the visual, which have come to dominate Western thought. I applied, as you will read in later chapters, a sensory and embodied approach to the 'data analysis' process. I drew on the '*physicality of theorising'* (St. Pierre, 2011) that also highlighted the 'doing' of 'data analysis' much like the 'doing' of my reading with '*A Thousand Plateaus' (2014)*.

I experimented with a new manner of sensing the video footage that could not be pinned down as a 'method' per se or triangulated, prescribed and repeated but worked immanently as the video footage unfolded before me. For example, I would attend to video footage filmed in the classroom not in the direct manner of watching intently, but as a subsidiary activity whilst I was cleaning my office, responding to emails and reading books. The classroom footage filmed on the GoPro camera became a 'background' distraction running on loop in the corner of the office. As I later discuss in chapter 5, I coined the unorthodox mode of spectating, '*video data sensing',* that opened an alternative way of understanding the video content beyond description and categorisation alone. I realised that it was impossible to disentangle my embodied responses with the video footage and, therefore, this moved my understanding of the images beyond language and description. I attempted to engage with those other senses (haptic vision, touch, audio) to begin to make felt the overlap in engaging with the video through normative socio-cultural means and 'sensing' the video through a new unorthodox approach. The process was experimental and resided in an immanent sense of wonderment as I engaged in the process of 'doing' the video analysis per se.

I have worked with the challenge of developing a relationship with some of these notions. For instance, the language of '*assemblage*' has worked to both support and develop new ways of knowing. Yet, I am still very much in the midst of '*getting to grips'* with Deleuze and Guattari's complex and interdisciplinary articulation in '*A Thousand Plateaus'* (1987/2014). I use the term '*getting to grips'* tentatively, as suggested, the term presupposes human intentionality and 'mastery' over the phenomena at hand, which, of course, is counterintuitive to Deleuze and Guattari's philosophy of

'*becoming*'. If there were indeed something to '*get a grip'* on then it would mean solution, closure, mastery and familiarisation. This is one of the many examples of self-correction that helped to sustain a continued dialogue with the ethics and politics that were at stake in such ontologies. In a move away from totalisation and 'mastery', the practice of '*getting to grips'* with the field 'data' resided in thinking with their philosophies of '*and..and..and..*' (Deleuze and Guattari, 2014). This manner of engaging with the world through an open system allowed me to think beyond scientific closure and solution and towards recognising a value in the process of '*doing*' research and 'how' recognising an active and ongoing mode of inquiry might be traced and productive of new knowledge.

I have found Deleuze and Guattarian (2014) concepts are rarely used in isolation; they function with and alongside each other and so I have used many of their terms in conversation. I elaborate below on the status of assemblage and other concepts used by Deleuze and Guattari that have supported my thinking and doing throughout the research. Nevertheless, it is important to acknowledge that in engaging with the philosophies of Deleuze and Guattari there is always a sense of dislocation and vulnerability, since seeking sanctuary in a 'safe space' of abstraction and totalisation is rendered impossible. Katie Strom explains, when working with Deleuzian philosophy,

> take what connects with you and that you can use at that moment, asking if it (a concept) works within the particular problem you are grappling with, what it might do in the context of that problem, and what it might do for YOU (2018:106).

Assemblages: Disrupting the ontological security of my researcher 'gaze'

Deleuze and Guattari's (1988/2014) notion of *'assemblage'* has become a significant conceptual 'tool' in negotiating those multiple animations of computer club through the lens of a GoPro camera. In the coming section, I attempt to elaborate on the complex functionalities of an '*assemblage*' and how I used it to reconfigure those arrangements of bodies (human and otherwise) that shape and influence the research process. I also draw on the complementary Deleuze-Guattarian notions of '*rhizome*' and '*becoming*' (2014) to provoke thought and offer diversions and detours in responding to the video phenomena at hand.

Buchanan (2015) presents a polemic article that alleges a continued misuse of the term assemblage across the social sciences, such that 'both small and large misprisions of Deleuze and Guattari's work have slipped under the radar and embedded themselves as 'truths' (2015:382). Buchanan's main concern is that assemblage theory has been used as a term to fix or lay out structures, to name and not frame problems that close down rather than open things up. In other words, Buchanan argues that the effectiveness of an assemblage comes from its open-endedness and capacity for change and not to fix and incite conclusion. Its 'lifespan' depends on its 'immanent ability to self-order its forces into temporary and changing coherences' (Taylor, 2014:381). The central tenet of the thesis will be to reside in the messy conceptual space of assemblages that function through their 'open-endedness', multiplicities and uncertainty, and to offer an account of the tensions and questions that emerge as 'lines of flight' (Deleuze and Guattari, 2014) and potential routes for inquiry.

Buchanan invites us to consider using the term '*agencement*', appropriately translated as 'arrangement', providing that we use it to describe an 'ongoing process rather than a static situation' (Buchanan, 2015:383). The term '*agencement*', which was the term used by Deleuze and Guattari, also implies both temporal and spatial possibilities. Law notes that the term encompasses a range of meanings including 'to arrange, to dispose, to fit up, to combine, to order' (2004:41). For my own clarity and familiarisation I have continued to use the term '*assemblage*', despite the ambiguity in the referential frames and ongoing concerns it may conjure up as denoting a fixed state of affairs. I take full note of such debates and put the concept of '*assemblage*' to work, as an open process that traces the unfolding relations between child, camera, video 'data' and researcher.

In the next section, I outline the components needed for an '*assemblage*' to function in conceptual terms. Deleuze and Guattari (2014) present an *'assemblage'* as a diagram consisting of horizontal and vertical axes. An assemblage, at first glance, seems structural; an object with stability, but the intent in this description of horizontal and vertical axes is precisely to undermine such ideas of structure. A Deleuze and Guattarian '*assemblage*' is a 'machinic arrangement' of emergent forces that is potentially provocative, disruptive and dislocating, with the capacity to generate

questions about ‘process’ and ‘relationships’, rather than leading us to systematic understandings of common discourses.

An assemblage is a topological concept that works along two open systems (horizontal and vertical); their properties are emergent, in the sense that one line may not work in isolation but is productive as a result of the intersections of two open lines, both horizontal and vertical, that work as rhizomes. The horizontal axis is referred to as a ‘*machinic assemblage’,* where the content of bodies, gestures and actions work in relation with the ‘*collective assemblage of enunciation’* concerned with expression, tacit and incorporeal acts and transformations. The vertical line associates itself with the relationships between territorialisation and deterritorialisation, a force of movement that operates along the ‘*molar line’* (the status quo) that is disrupted through moments of ‘*deterritorialisation’* or ‘*lines of flight’* (disruption to the status quo). That is not to say the vertical line provides any form of structure or hierarchy within the assemblage. Deterritorialisation is a notion that I considered an important function, in order to carry the assemblage away between the spaces of the horizontal and vertical axes. For example, when applied to the tracings of a child and camera assemblage, I draw on the indiscernible video footage that incited a dislocating effect brought about by the obscure and blurred camera angles. This offered a disruption or a fissure to the ‘molar line’, in which the spectator was forced to make sense of the action on screen through an alternative frame of reference. I theorise the video footage using Deleuze and Guattari’s philosophies of ‘lines’ in chapter 6 and elaborate in detail on this theorisation using several still frames.

To synthesise the usefulness of the concept of ‘*assemblage*’, I introduce the child and camera as an assemblage that operates through their heterogeneous configurations along the horizontal and vertical axes. For example, the horizontal line works across the assemblage to recognise the relations of bodies that work in correlation with the ‘*collective assemblage of enunciation’* that can be perceived through the child’s gestures and the ‘incorporeal transformations they express’ (Deleuze and Guattari, 2014:97). The concept of *‘molar line’* operates as an important function within a rhizomatic and open system of events. A *‘line of flight’* works as a force that opens experience to its potential variation, from inside the *‘assemblage’* itself. The ‘*line of flight’* invents new forms of existence as it is everywhere all of the time. For example, researchers often default to normative visual research practices (*molar lines*) that are

associated with modes of knowledge rendered by representation and human movement as superior to all else in frame. '*Deterritorialisation*' operates along the vertical axis to carry those 'normative' values away along '*lines of flight'* (Deleuze and Guattari, 2014) as we adjust our initial human presuppositions and wider associations within the status quo or molar line. However, deterritorialisation also operates diagonally across the assemblage, as it diverges or veers off the vertical axis and becomes part of the definition of a line of flight.

Tracing a child-camera 'assemblage'

In articulating the use of the term *'assemblage',* there has been complexity and overlap in creating the theoretical corner stone for my own research inquiry. As discussed, I have disappeared down many 'philosophical rabbit holes' and have come to realise the deployment of the term assemblage can describe a generic or ideological state of affairs.

I feel it pertinent to delineate some further qualities the concept of '*assemblage*' has offered in understanding the video footage produced through non-hierarchical arrangements of bodies (human and otherwise). Assemblages are finite yet have no pre-determined lifespan or temporality. Therefore, the still frames and footage presented throughout the thesis work on a temporary basis and function directly in relation to the spectator. Assemblages have no essence and are productive of difference and not repetition. Like much of Deleuze and Guattari's work, they operate through the notion of '*becoming*' rather than '*being*' and this is experienced as part of unfolding encounters. In this instance, the knowledge is generated as the child and camera '*assemblage*' make new connections or '*lines of flight'*, not in isolation but through the video in relation to the spectators unfolding sensory and embodied perceptions.

As previously discussed, there is an ambiguity in the referential frames of the term '*assemblage*' within post-qualitative inquiry, see for example Buchanan (2015). Assemblages may also shift from thinking about social and anthropological studies that consider humans and primates within arrangements of culture, language, societies, materials, behaviours and habits, to the experiences of the subject in the phase of development known as '*becoming*', which I have drawn on for my own inquiry. Deleuze and Guattari's (2014) philosophy of '*becoming*' is thought of in relation to

multiplicities of bodies that continuously transform through 'rhizomatic' arrangements rather than hierarchical 'arborescent' systems. The term '*becoming*' denotes a refusal of closure and a rejection of beginnings and endings in favour of mid-points that are traced through bodies (human and otherwise). All things are *'becoming'* and this includes human subjectivities; this conceptualisation has been useful to recognise what has come to matter within the child and camera *'assemblage'*.

A Deleuzian-inspired methodology

The important consequence for how the Deleuze-Guattarian concept of '*assemblage*' played out was a practical philosophy considered in relation to the refusal of closure. In this sense, the methodology refused a static state of affairs that resided in answers and pre-fixed categorisations. Instead, I resisted closure as a means of adopting a speculative and open-ended approach. I theorised objects, bodies and meaning operating through *'assemblages'* and, in doing so, I considered such arrangements as tentative holding places of fragile 'comings-into-relations' (Manning, 2016). I attuned to the potential in thinking life with and beyond the child, thinking life as '*more-than-human'* and '*other-than-human'* (Taylor, 2014). In an attempt to capture those 'coming-into relations', it seemed to be a much bigger and much more ungraspable process than filming, field notes, observations and video 'data' could ever have offered me as methods alone. It was at this point that I noted how I became more embroiled in the research and within the many '*assemblages*' that formed and reformed my own and the children's subjectivities through the various ways I came to recognise the '*doing*' of the video research with children.

The open-ended arrangement of bodies (human and otherwise) enabled an approach that produced tension, wonder and rupture to transcend dominant meaning and systems. Deleuze and Guattari (2014) considered *'rhizomatic'* practices as an event accessed through the middle, where things grow, expand, and pick up speed. The middle is a difficult place to be, where immanent practices of thinking, making and doing come from within the event. For example, there was no ultimate goal or end point to be achieved that presupposed hierarchy, as growth and *'becoming'* happened in the messiness of the heterogeneous connections that emerged through my encounters. Deleuze and Guattari (2014) wrote that it is hard to see things clearly in the middle, this being the precise point, as the phenomena eluded categorisation and totalisation.

> Where are you going? Where are you coming from? Where are you heading for? These are totally useless questions… *Between* things does not designate a localizable relation going from one thing to the other and back again, but a perpendicular direction, a transversal movement that sweeps one *and* the other way, a stream without beginning or end that undermines its banks and picks up speed in the middle (2014:26-27).

I will later synthesise how I drew from the overarching language of '*assemblage*' to consider 'method', in Jackson's terms, as an act of 'biting into (…) and seizing (…) the surrounding milieu(s) of objects, bodies, light, colours and materials. In this sense, the child and camera assemblage worked as a conceptual tool that opened the event up as they 'borrow(ed) from all other internal and external milieu(s)' in computer club (Jackson, 2016:187). With such conditions at play, developing an approach to the writing of field notes was one of the most challenging aspects of the research whilst in the field. What to write, how, when, what specific details and quantity, became an ongoing conundrum. How was it possible to capture in writing what was happening and act within the speculative nature of the inquiry? How was it conceivable to produce knowledge without a 'self' doing the producing? (St. Pierre, 2013). Taylor suggests such questions keep qualitative research on the move in order for us to:

> attend to the gaps, silences, excisions and exclusions, thereby to work out ways of approaching a future which is more inclusive, collaborative and kind for all human, non-human and other-than-human entities. Such a task will, indeed, involve us in a less comfortable social science (2017:323).

My research pursuits had shifted from recognising the '*what*' and *'how'* within each encounter, to recognising specific nuances and behaviours that provoked thought and created problems and what such problems opened up. Indeed, I was in the midst of 'a less comfortable social science' (Taylor, 2017). The ontological shift to view the world through *'becoming'* rather than '*being*' resided in the ability to recognise the problems that contained the answer, for example, the initial research questions that had originally impeded progress and contributed to my ongoing sense of failure at the start of my research (see chapter 1). Instead, as I show later in the chapter, notions of *'becoming'* opened the field notes up as emergent within the site of the encounter that were helpful to invent new forms of existence between the child, camera and my own sense of participation.

Operationalising Deleuze and Guattari's philosophies

The coming section delineates studies that have implemented Deleuzian-inspired philosophies, which are closely aligned and relevant for my own study in computer club. This section serves as a brief stopping point to negotiate and highlight my own methodological contributions to the growing field of child participatory research through a Deleuzian-inspired prism. I expand upon and add to the discussions in further detail in chapter 4. The studies are not all video-based but are useful in presenting how aspects of Deleuzian theory have been creatively used to understand humankind from a much more decentred point of view.

De Freitas and Palmer (2016) trace post-human assemblages by resisting an image of learning and focussing on how children are entangled with concepts in classroom research. Deleuzian (1993) philosophies aid the authors in re-animating the processes of learning within a science experiment that uses force as a material-discursive concept that is entangled with the evolving child subject. The authors demonstrate that scientific concepts, such as force, do not come from the outside and are not applied by an adult, but are 'knotted into the learning assemblage as concrete universals' (2016:1207). In this sense, concept and child are co-produced through the encounter in thinking more carefully about the materiality of responses and not dwelling on accepted meaning. They suggest this alternative pathway provides a pragmatic way to flatten out hierarchical relationships in between object and subject, 'thinking and doing', 'fantasy and reality' concepts and particulars (2016:1208). Using a similar 'flattened' out arrangement of the world, Murris (2016) suggests a 'non-hierarchical philosophy of education' (2016:6) that distances the post-human researcher and child from language and representation that carves people up into mind and body. Murris' philosophy assumes new becomings and thinking without representation, in relation to children and childhood. My study in computer club hopes also to contribute to ongoing conundrums in post-qualitative studies that dispute the subject or 'I' as singular and that give the human control over materials, animals and physical spaces.

Deleuze and Guattari (1987/2014) use the term '*Body without Organs*' (or thinking without subject), to suggest a human being is not a single subject, but multiple. They use this term to push against everything in Western thinking that flows from the habit of saying 'I' as the self is recognised and cut apart from other selves and things (Lenz

Taguchi and Hultman, 2010). Inspired by such terms, Lisa Mazzei developed the notion of '*Voice without Organs'* 'to describe a different kind of human being that enabled one to think voice differently' (2013:733). This multiplicity, she suggests, is an assemblage, an entanglement of lots of forces and intensities that operate on a plane of immanence, producing a voice that does not come from a single subject. Such notions are useful for my own study in recognising the child, camera, video footage and researcher as mutually imbricated where agency, autonomy, voices and power must be re-accounted for.

The studies discussed provide a 'snap shot' in pushing beyond 'dualist categorising and normalisation' (Lenz Taguchi, Palmer & Gustafsson, 2016:713) to consider human subjectivities in alternative ways. In doing so, the studies specifically challenge the notion of humankind as 'author' or as 'fully responsible' with prevailing agency over the material 'apparatus' used that renders human-centric frames of overriding human agency. Yet, such studies do not comprehensively explore the re-configuration of visual researcher within these ontological entanglements with matter and meaning. The thesis attempts to join in with ontological conversations that aim to trouble human agency by interrogating those 'supposed' clear borders between bodies, materials, forces, technology and film. Furthermore, I draw attention to how the visual researcher is also implicated within entanglements of discourses and senses and what this means for thinking with/through/beyond education video research practices.

Some key thoughts: Moving forward with a Deleuzian-inspired ontology

I have identified two problems. First, there are relatively few video-based studies using Deleuze-Guattarian philosophies (1987/2014) as conceptual tools to explore children's socio-material worlds in classroom-based scenarios, as I later discuss in chapter 4. In particular, there are few visual methodological studies that foreground a GoPro camera and the resultant video as mutual material agents in a complex arrangement of matter and meaning that my study aims to achieve. Further still, my study attempts to offer a way of theorising the GoPro device and the resultant video that performs in co-existence with the child and the visual researcher that no longer privileges the vertical (Deleuze, 1989:254). This means to resist the status quo or the dominant manners of understanding human positionality through a privileged position over matter. In doing so, the central tenet of my thesis recognises agency as not being

located within one single subject, but 'produced in relation with material-discursive human and non-human other' (Murris, 2016:29).

Secondly, there still remains a need to further interrogate the researcher 'gaze' through a post-qualitative lens and, therefore, I take up this challenge and attempt to reconfigure both child and researcher subjectivities in mutual imbrication with the video phenomena at hand. In doing so, I embrace my pre-existing histories, assumptions and knowledges, yet in a way that ensures ethical integrity within a 'messy' Deleuzian ontology. I continue to grapple with a multiple and complex researcher role, writing and thinking myself in and/or out of the process. Throughout the thesis, my dalliances with 'otherness' (Murris, 2016) are evident as I tentatively traverse matter and meaning. However successful this may or may not be, I persist in the unsettling affair to decentre human subjects, toing and froing between bodies, materials, matter and discourses, to offer a new mode of engagement. I suggest this gives my post-qualitative research ethical rigour and validity in the face of other more scientific enquiries. As such, the children's wellbeing and my responsibility of care for them are very much at the heart of the practice but from a much more decentred ontological viewpoint.

Drawing on Deleuzian-inspired studies, which I further elaborate on in chapter four, helped me to reconceptualise human and non-human agency in recognising the unity and interdependence of the human with other material forces and entities. This entailed re-thinking the role of researcher in the space of post-qualitative inquiry and how this research role operated within and against traditional qualitative methods and the implications for doing so.

Becoming researcher in a post-qualitative inquiry

In this section, I map out the various routes I have taken in negotiating my way through the terrain of post-qualitative research method/ologies. I draw on the literature of post-qualitative research in order to rethink the nature of qualitative inquiry and how this might help to move away from conventional qualitative methods towards a more creative and open-ended set of practices. Later in the section, I interrogate qualitative methods and terminologies, such as reflexivity, data, video analysis and participant observations, and attempt to push them in a new direction. I exemplify this with a brief preliminary discussion of some of my field data and personal anecdotes.

As discussed, I locate the research in the wider paradigm of qualitative research, specifically, in the relatively new arena of post-qualitative research that has become an international endeavour over the past 20 years (MacLure, 2006, 2013; Jackson & Mazzei, 2012; St. Pierre & Lather, 2013; St. Pierre, 2014; Manning and Massumi, 2014; Taylor 2016a, 2016b, 2017; Manning, 2016; Springgay & Truman, 2017). Taylor (2017) explains that there are two main fronts to post-qualitative inquiry; the first being 'a desire to critique neoliberal research, audit cultures (…) performative regimes (…) and evidence-informed practice' (2017:311) that have often been uncritically served by qualitative inquiry, and the second front, St. Pierre (2014) explains, resides in the critique that post-qualitative inquiry offers of conventional qualitative methodologies, proposing instead inquiries that are not method-driven but informed by conceptual practices and what they make possible. Both fronts are equally important; however, the thesis principally engages with the latter. Locating the research in a post-qualitative paradigm also indicates a commitment to a new ontological orientation and is, therefore, different from those scholars who have an interest in the politics of knowing within feminisms, post-structuralisms and post-modernisms that 'have routinely excluded nonhumans, other-than humans and more-than humans' (Taylor, 2016:23).

I have been inspired by post-qualitative thinking in order to negotiate my researcher role. For example, Lather and St. Pierre (2013) explain that we have become so attached to our invention of qualitative research that we have come to think it is real. The question of our attachments must remain a focus, otherwise it will keep us from living and thinking differently and these sentiments have remained at the forefront of my work. The inquiry set out to explore a new ethics of engagement where the video footage and field notes foreground 'ecologies of human and non-human relations' (Taylor, 2016:17). As a post-qualitative researcher, I remained in the trouble, attempting to disconnect myself from the mangle (Self) and then carefully disconnect some other small piece of the mangle (Other) long enough to study it (St. Pierre & Later, 2013). This also meant re-thinking what qualitative research data might become in the process of being in the mangle with the data that became un-representable to itself (MacLure, 2013).

I persisted in the 'messiness' of what it was to recast ontological and epistemological thinking by challenging those fundamental assumptions conventionally made in relation to the children, camera, setting, video footage and I (researcher). In other

words, I resisted the temptation to 'frame' events that installed human presuppositions, beginnings and conclusions. Instead, a new manner of inquiry prompted wider questions regarding the usefulness of qualitative research 'method/ologies' in this post-qualitative paradigm, where 'data' was always impartial and incomplete (Koro-Ljungberg, MacLure & Ulmer, 2018). Experimenting with humanist ontologies has been the key driver and, as such, the ethical charge of my work has been 'to question (…) attachments that (deter me) from thinking and living differently' (Lather & St. Pierre, 2013:631).

As discussed earlier, the thesis predominantly draws on Deleuze and Guattari's (1987/2014) notion of *'assemblage'* in conversation with post-qualitative inquiry. Both sets of philosophies recognise the human actor as a complex and open-ended subject that helps to think across established human-centric categories. Drawing on both philosophical conversations was useful to invent new conceptual schemes in recognising the unity and interdependence of the human with other material forces and entities.

Post-qualitative inquiry can be seen as part of a wider change in philosophy and theory that some have called the '*ontological turn'*. Rosiek (2013) describes this as having two key tenets. The first recognises a commitment to '*reflexive realism'* and the latter asserts the use of an ontology of the future that serves as a guide to social inquiry. The 'ontological turn' signals a shift of focus away from epistemology (knowing) towards ontology that is being and the nature of reality. This is a form of post-humanism because it does not assume that reality is socially constructed, or that the world only exists for and through human concerns. To this extent, new materialisms, new empiricism, Deleuzian philosophy and post-humanisms can all be situated within this broader 'ontological turn'.

The fundamental ontological shift in my thinking, as noted, has been to recognise the world through the concept of *'assemblage'* that constituted inter-relations of bodies (human and otherwise). This has entailed breaking through the binaries that elevated human intentionality and knowledge over all other matter. The decentring of human kind has been a critical factor, which has provoked recognition of the 'other-than-human' and 'more-than-human' (Taylor and Hughes, 2016), in which bodies, matter, things, objects, sound, light and colour are equally constitutive in forming realities. The

test has been to observe what these disparate relations might 'look' like and the value in recognising what comes to matter through such relations. As I later elaborate, I foreground Deleuze and Guattari's (2014) philosophies to recognise processes, events, bodies and environmental factors as '*assemblages*', in which potential is created through their coming together-ness and not in the individual entities (human or otherwise) qualities and functions. St. Pierre elaborates:

> each researcher who puts the 'posts' to work will create different articulations, remix, mash-ups, assemblage, a becoming of inquiry that is not priori, inevitable, necessary, stable or repeatable but is rather created spontaneously in the middle of the task at hand (2011:620).

This is a branch of ontology that concerns *'is'* rather than '*what*', in relation to being and reality; it recognises how entities organise rather than fix themselves. Recasting human intention for both researcher and child has meant breaking down traditional binaries embedded within representation and knowledge-making practices that have rendered 'absolute truths that prop up every day human activity' (St. Pierre, 2011:615). Freeing oneself from existing qualitative paradigms and persisting in the mess of a dislocating take on 'reality' and 'truth' has prompted a new mode of ethical awareness.

I recognise concept as method following the work of writers, such as Manning and Massumi, 2014; Jackson, 2016; Taylor, 2017; Springgay and Truman, 2017, in a quest to articulate those practices of *'doing'* research and recognising value in real and messy engagements with people, apparatus and 'data'. The most challenging aspect of this paradigm shift has been to write inventively, in order to undo the 'god-trick', the presumption of objectivity, or view from nowhere (Haraway, 1988), and to recognise that knowing is beyond literal interpretation. I have not yet learnt to write easily without saying *'I'*, '*me', 'myself'*, but I have firmly recognised those wider post-human debates that begin to dismantle traditional ideas of 'subjectivity', 'representation' and binary thinking that are firmly entrenched within conventional qualitative research practices. In this sense, the thesis is an experiment for 'how we can think data differently, not only in search for meaning after the event, but at the site of its production as well' (Somerville, 2016:1163). Deleuze and Guattari write that the goal is not to reach the 'point where one no longer says 'I', but the point where it is no longer of any importance, where one says I' (2014:3). The implications for this way of thinking are radical for social science research. They involve no longer thinking of oneself as 'I',

but as a functional entity within a complex arrangement of '*assemblages*'. The task has been to reconceptualise those face-to-face methods, such as observation and field notes, which have relied fully on human presence. Springgay and Truman attempt to re-cast method and suggest:

> rather than a refusal of methods, (…) particular (in)tensions need to be immanent to whatever method is used. If the intent of inquiry is to create a different world, to ask what kinds of futures are imaginable, then (in)tensions attend to the immersion, tension, friction, anxiety, strain, and quivering unease of doing research differently (2017:2).

As such, I have found it futile, almost impossible, to escape the 'I' when dealing and writing about humankind and realised quickly this was not my central concern – i.e. to explicitly refute my experiences. Davies asks 'how else (are) we to explore embodiment and emotion except through a reflexive examination of our own embodied emotions' (2016:2). Rather than abandoning reflexivity, I have used reflexive practices in a new reconfiguration with concept, material and bodies (human and otherwise) to think about the potential in their coming togetherness and what this might provoke. I elaborate on using my field notes later in this chapter.

Much of my thinking has been steered by debates about '*becoming*' as opposed to *'being'* emergent through a scope of empirical work within the '*ontological turn'* of qualitative research methodology, as described above. The research process has involved the development of new video research practices of the future, opposed to a focus on 'accuracy and description' (Rosiek, 2013).

I draw on specific, empirical work that has emerged out of the recent '*ontological turn'* (Rosiek, 2013) in social theory and research methodologies (Hultman and Lenz Taguchi, 2010; MacLure, 2006, 2013; MacLure, Holmes, MacRae and Jones, 2010; Jackson & Mazzei, 2012; de Freitas, 2015; de Freitas and Palmer, 2015; MacLure, 2013; Youngblood Jackson, 2016). Unlike post-structuralism, which has its roots in the linguistic conception of meaning, I draw on empirical work that foregrounds 'the material and embodied nature of our intellectual habits' (Rosiek, 2013:694). Specifically, I draw on visual research that considers the material and embodied nature of children's encounters (Lenz Taguchi, Palmer & Gustafsson, 2016; de Freitas, 2015, 2016; de Freitas and Palmer, 2015) and, as such, troubles those 'norms' and embedded ontological assumptions about what is 'true' in the world of education. I

ask how we might go about working the limits of visual research with children and what this might look like in a school-based scenario. Rosiek (2013) argues that we must move beyond 'simple descriptions of what is real and right in the world' and, instead, recognise 'practices that happen within experience and that shape experience' (2013:694); this has become the central tenet for my alternative methodological inquiry.

~~'Method'~~ in the afterwards

The mode of inquiry adopted in the thesis can therefore be seen as a form of post-human empiricism that does away with '*method*' in favour of experiments with concepts, that forces a reconfiguration of 'things' (human and otherwise). In locating my research within a messy and heterogeneous field, I wonder what '*method*' might become in the afterwards (Lather, 2013) of such radical rearrangements of human-centred processes. What does the challenge of viewing the world through a 'flattened' arrangement of, for example, humans, machines and materials offer in knowing children's realities in a classroom differently? Furthermore, how do I go about the business of manoeuvring though such uncertain terrains to illuminate multiple animations of children's realities in the classroom?

In this section, I draw on personal anecdotes, 'field notes' and 'reflexive practices', formulated throughout the inquiry. I do so, to present some of the 'self-corrective techniques' (Lather, 2006) I used as I performed the 'doing' of the field work. I articulate the challenges of reconceptualising traditional qualitative methods and ways of thinking about 'data', not to deny human experience, but to show:

> the dirt from fieldwork is still under the fingernails, that the data that refused to 'speak' has not been left on the shelf, and the meanings that evade the cover story of the 'finished' research remain to puncture that smooth and soothing narrative surface page (Taylor, 2017:322).

Reconfiguring traditional ideas of '*method'* and field *'data'* meant treading carefully; as Manning (2016) explains, we must be careful not to create 'false problems' in our dalliances with methods in post-qualitative paradigms. The first critical factor, Manning suggests, is the 'non-existent' problems, the terms of which contain the confusion of the 'more' and the 'less' and 'badly stated' questions. These types of questions maintained the status quo or '*molar line'* (see above, and further below), where the question also contained the answer. Manning (2016) provides the examples of

academic critique and debate, which are too often played out at a level of false problems and badly stated questions. I used such tensions to explore regions of thought that opened new kinds of problematic processes. In this sense, to inscribe new meanings on 'old' terms (Lather, 2006) was a futile task and, as such, I needed to recognise more broadly how to rethink some of the dominant social science terminologies. For example, I recognised a badly formed question in the field of post-qualitative video research would ask 'what is a successful interaction?' or 'what communicative skills do children need in the primary school classroom?' All of these example questions are too general and foreground language and human interaction to make meaning. As a detour, I engaged with knowledge as it was being reframed in pockets of academic discourse that denied traditional qualitative method as a generator of knowledge and that resisted the re-production of questions. Manning explains that if we take this route:

> what emerges […] will never be an answer. What emerges will be patient experimentation. What emerges will be another mode of encounter, another problem, another opening onto the political as site as yet undefined (2016:13).

My initial intention was to pronounce the study an ethnographic pursuit, a much revered and widely acknowledged method in qualitative research. However, ethnographic practices were clearly grounded in the humanisms that I no longer believed were significant. However, there are now attempts with ethnography and the parent discipline of anthropology to develop materialist and post-human approaches (Ingold, 2011, 2016; Kohn, 2013). I engaged with Springgay and Truman's (2017) argument for rethinking '*method'* within post-human research, a standpoint that recognised a need to find new meanings and applications for method itself. I quickly came to wonder about the clarity and understanding of those other qualitative research terms in which I had heavily invested for so many years. In the coming section, I elaborate on the challenges of attempting to liberate myself from qualitative '*method*' in favour of a more '*speculative*' (Springgay and Truman, 2017) approach. Working without *'method'* per se meant a long-term and open-ended commitment, attentiveness and sensitivity to context, where my experiences gave way to experimentation. Springgay and Truman (2017) explain the need for a shift from thinking about method as processes of gathering data to consider it as becoming entangled in relations. This became the perfect antidote when traversing the

relationships of bodies (human and otherwise), children, camera and the resultant video footage.

My intention was explicitly not for the children to be acted upon through those traditional research 'observation and questioning' techniques. I wanted to incite a 'blurred division of labour' (Erickson, 2011:46), where the distinction between the observer and the observed was ambiguous. More than this, I aimed to reach beyond subject and object positionality altogether, to a point where such terms as 'participatory observation' floundered as they were still immersed in human intentionality. The process of questioning such fixed qualitative methods produced an irruption that slowly began to deconstruct the ontological, epistemological and methodological 'framework' I had been trying to navigate my way through.

I began to rework what 'participatory observations' meant for my ways of 'doing' and 'thinking' within the inquiry. St. Pierre (2011) offers a 'deconstructive approach' that helped to put structure and associated discourses under contortion. St. Pierre's notion of '*deconstructive*' methods derives from Derrida's (1967/1997) philosophies of '*sous rature'*, translated by Spivak (1997) as language '*under erasure'*. Spivak explains this is 'to write a word, cross it out and then print both word and deletion' (1997:52) and it is necessary as it is 'inaccurate' yet remains 'legible'. For example, using St. Pierre's deconstructive methods, I recognised both participatory observation and reflexive practices as inaccurate yet legible within a speculative inquiry. For example, I present the term '~~participant observer~~' as a way of re-configuring method and tracing human-centric privileges within such terminology. However, at the same time, I consider what a '~~participant observer~~' might become in a new 'flattened' arrangement of the world, where there is no one privileged subject. St. Pierre suggests that in using this method:

> we retain the structure of qualitative research methodology, its structuring concepts and categories, because it appears necessary and at the same time, cross it out because it is inaccurate (2011:613).

Therefore, the reconfigured term '~~participant observer~~' signals the opening up and not the closing down. The crossing out works to incite a potential and not a loss, as we play in a new space that tampers with those traditional normative ideas associated with incorrectness. Throughout the remainder of the chapter, I use St. Pierre's (2011) deconstructive approach to persist in the 'messy' affair of experimentation with

language to think beyond those associated human-centricities that are contained in such qualitative research terminologies. I attempt to highlight and retain the structure and associations with human presuppositions whilst simultaneously 'pushing' away from such human-centredness within familiar research terms. In this sense, the crossing out of the term helps to dismantle the power relations within the language of the inquiry and recognise the other forces and materials that come to matter (Barad, 2007).

~~Participant Observer~~: Sensing the doodles and field notes

I take up the challenge of this demanding work of freeing oneself from the constraints that lurk in familiar qualitative research frameworks to consider 'life' through an alternative perspective. I navigate this unstable terrain in thinking with Gilles Deleuze and Felix Guattari (2014), who present their philosophies as concepts that can be put to work and made useful, as I have discussed. In the coming section, I draw from my field notes to highlight how I came to operationalise concept as method working in the field with children and GoPro cameras. I foreground the ideas of thinking with theory (Jackson and Mazzei, 2012) and, in doing so, offer my personal anecdotes 'as brief stopping points' that are 'continually transformed', as I 'turn the 'data' into something different' (Jackson and Mazzei, 2012:6) each time. The writing process, for me, has become a 'field of play' (St. Pierre, 2011:620) that 'is never just textual' but incites thought in process.

Here and throughout the thesis, I have deliberately avoided writing lengthy, rich descriptions that detail the school setting and the individual child subjects within the 'analytical chapters'. I believed, at first, that this was an injustice to those wonderful children who had continued to support and engage with the research. I surely owed them a full and eloquent description in my write up. However, I have remained vigilant throughout the writing process to refrain from falling into the human-centric 'trap' that gives precedence and greater value to description and categorisation of human research 'subjects' through our analysis of data. I have come to realise that choosing to abstain from providing a rich description of the children was not a 'dead-end' or an injustice but an opening to engage with the descriptive process in a new manner and activate the differential within my writing (Manning and Massumi, 2015). This was an experiment to see what my writing did when I attempted to decentre the child within

the action that provided a contour of how concept might be put to work in real world scenarios.

I recognised the assumptions that lay in using 'thick descriptions' (Geertz, 1973) per se that were not only attributable to humankind. Indeed, I could have spent a significant portion of time describing the non-human parts of the study but this would have been counterproductive to my ongoing entanglements with the phenomena at hand. For example, describing the non-human entities in the study would have granted the 'non-human' with a privileged presence and my intention was to recognise all bodies (human and otherwise) as mutually imbricated. As identified earlier in the chapter, Barad (2007) suggests we are entangled in many forces and these entanglements are not the joining of separate entities, but rather there is no independent, self-contained existence in the first instance. In this sense, we are never able to objectively observe and describe those people, surroundings, objects and encounters that constitute our inquiries.

Refrains

At this juncture, it is also necessary to introduce Deleuze and Guattari's notion of *'refrain'* and discuss how I have found use for such a concept when coming to sense the video footage and accompanying field notes through new modes of engagement. A refrain operates through its expressive functionality as it 'gathers forces at the heart' (Deleuze and Guattari, 2014:380) of the milieu. Refrains are the first forms of ordering of chaos and do not always form part of an assemblage. Deleuze and Guattari predominantly associate *'refrains'* with their sonorous qualities, yet they do recognise a refrain's sensory and visual potential. I draw on the aesthetic and visual potential of a *'refrain'* in conversation with the many field notes and doodles I created throughout my time in the classroom. For example, I recognised how fragments of written 'data' (field notes) marked territories that resided in moments when diverse (human and non-human) forces became expressive. For example, the image below (figure 2) outlines where my coffee cup stained my note paper during one particular lively session with the children. I recall the specific moment I spilt my drink talking to a group of children, who all erupted in laughter. One, concerned little girl ran off to collect tissue paper, noting my embarrassment she demonstrated compassion and wanted to help me clean up the mess. The field note (figure 2) presents much more than the words alone; it makes felt moments of care, attention, joy, compassion and embarrassment in

mutual entanglement with the coffee-stained paper. Human and non-human agencies work as a force to produce new insights, temporary pauses and an alternative manner of engaging with emergent relations in the field.

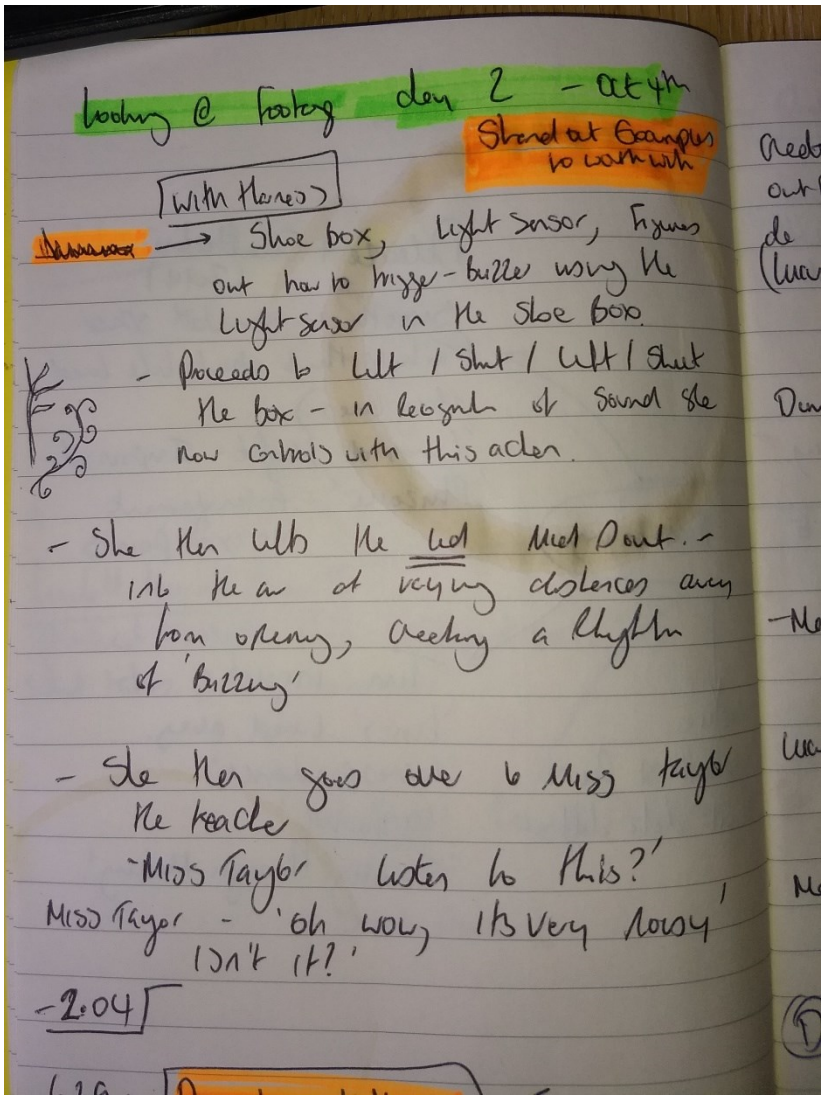

Figure 2 (Caton field notes, Coffee-stained, October 4th 2017)

Furthermore, I wondered how the intriguing phrases on the field notes and 'child-like' doodles within the margins might be activated in the ad hoc work of the refrain to trace the 'more-than-human' and 'other-than-human' forces (sunlight, heat, colour, light) that were at play on the day of filming with the children in computer club.

Pilot Study: Human, Field-note and classroom encounters

During the pilot study, the heart of the field work involved more participation and less observation, in recognising the act of 'being with' and not 'looking at'. I was in direct contact with the children, the ethical considerations seemed less to do with informed

consent, although this was important and more to do with the overlapping roles, relationships, interests, feelings and loyalties. My ethical mandate embraced a collaborative and open-ended mode of inquiry that recognised the micro processes of human interactions and the subtle dynamics of our unfolding behaviours towards each other.

Fostering such relationships took time and it relied less on written documentation and more active listening to the children's stories, imaginings and questions. Of course, from my adult-centric position in the room I was privy to only a certain perspective on the action as it unfolded. However, I recorded key phrases, words and subconsciously created doodles that prompted memory and imaginings of a different kind for my meanderings later on in the day. I often watched the children manoeuvre around the space of the classroom performing in front of the static camera. Moments later, I would look away to record on paper but the event had elapsed and words alone failed to capture any sense of what had previously unfolded. I decided to use the field notes for their other useful functions and surprisingly found a quality, as discussed, in the many doodles and margin jottings that I had scribbled down. As single 'data' entries they were nonsensical but in their coming togetherness the scribblings created new insights and worked beyond their immediate content. For example, the image below is an example of one of the many field notes produced during my time at computer club. I use the Deleuze-Guattarian concept of *'refrain'* to explore the aesthetic qualities of the doodles. I do so, to trace out the behaviours, distractions, wonderings and imaginings that opened the encounter to new potentials through the ever widening and open-ended assemblage of bodies (human and otherwise). The doodles on the field notes operate at this juncture to provoke thought beyond their immediate written content.

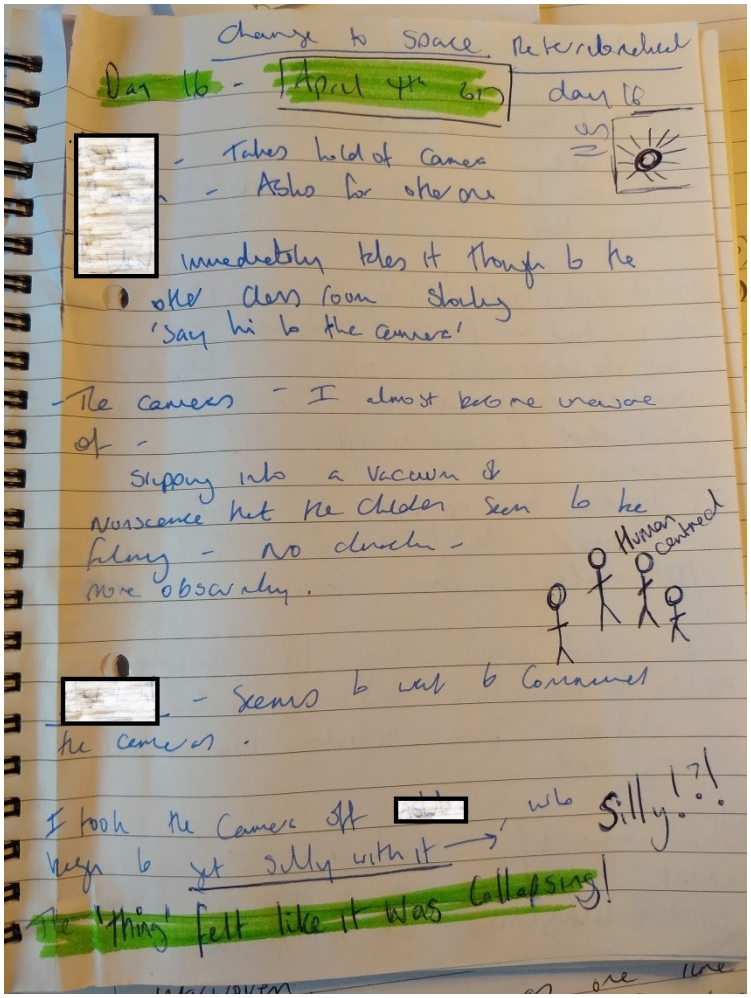

Figure 3 (Caton field notes, Doodles, April 4th 2017)

Yes, my field notes were notes about the field but notes also made in the field and so they had a dual purpose. As discussed earlier, I attempted to make notes whilst communicating with the children but this proved unfeasible as my attention was drawn to various conversations and distractions. The short extract from my field notes (figure 3) highlights such struggles, the jottings attempt to document one particular child and his dalliances with the GoPro camera around the space of the classroom. It is important to note that the classroom was warm at the time as the spring sunshine flooded in through the large windows. The children complained that it was hot, yet they spoke excitedly about getting their bikes and scooters out once they got home. There was a definite sense of 'giddiness' and excitement amongst the children. Most of my field notes at this juncture are human-centred as I make continuous reference to a little boy who had exhibited 'inappropriate' behaviour with the camera. I decided to intervene which resulted in me taking the camera from him. I wrote in my notes, he '*began to get silly with it'*. By the end of the session, I had concluded '*the 'thing' felt like it was collapsing'* (see bottom of figure 3). By this I mean, the whole situation felt

like it was operating out of my researcher 'control' and sense of 'mastery' over proceedings. Some of the children seemed frustrated, tired and a little irritable, maybe due to the overwhelming heat of the room. From my adult-centric position, I had created an imaginary 'structured' world that required adult 'mastery' where a sense of closure was required. By the end of the session, this sense of 'mastery', I concluded, had resided in '*collapse*' and *'silliness'*. The field notes were built on human presuppositions, containments and a 'false' understanding of what I thought 'right' and 'true' with the world.

However, it is possible to reconfigure the field note through a Deleuze-Guattarian lens that resides in the heterogeneous functions and relations of both human and non-human entities (for example, sunlight, outdoor space, bikes, freedom, fresh air, bodies, desires). Decentring the human within the field notes forces new engagements with the aesthetic qualities of the '*stick men'* and *'sunshine'* doodles (figure 3). It moves beyond the literal meanings of the written notes and doodles and, instead, draws from those wider associations incited.

For example, the sun, heat, small classroom space, the boy, camera, bikes and desires all operated together, entangled and jockeying throughout various 'assemblages' of matter and meaning. In other words, the field notes extend beyond the immediate context of the words and doodles that we 'see'. I would suggest that they operate to provoke thought along '*lines of flight'*. Simply put, the day was not a '*write off*', but was filled with all manner of potentials that were overlooked and rendered by the containments of my own presuppositions and human-centred practices at the time. Deconstructing my role ~~participant observer~~ operates to disrupt those initial human-centred presumptions that contribute to a false sense of 'mastery' over proceedings. I wonder what the little boy might become through the field notes in new entanglements with matter and bodies (human and otherwise.

The deconstructed term ~~participant observer~~ allows me to recognise other forces in operation beyond and in co-existence with humankind. The focus here is no longer on how the field notes are used to represent or form the children's identities, but on how to work constitutively to produce fragments of potential from within the event. In this sense, the field note captures 'pure intensities in matter, allowing matter to stand alone

or be liberated from its habitual and human series of recognition' (Colebrook, 2014b:250). The sensations incited through the qualities of the field notes are not those of the lived subject alone but are powers of perception beyond the self that provide us with 'a new distinct model of reading' (Colebrook, 2014b:250). The still images, doodles and field notes function through their aesthetic properties that provide matter with an expressive quality. As a ~~participant observer~~, I am imbricated and become a component within a temporary and flourishing assemblage of (child, field note, researcher) that assumes a special function beyond human-centricities

~~Reflexivity~~

There still remained an ongoing tension woven throughout the inquiry that related to human presumptions embedded in my reflexive practices. On many occasions, whilst poring over hours of video footage and wondering how best to 'manage' such vast quantities, I frequently recollected conversations, stories and moments of amusement that I experienced with the children. I asked children questions, listened to their imaginings, watched what they did, they trusted me. In so far as I deemed myself competent and capable, I joined in with the activities in computer club and I enjoyed recollecting the experiences. Reflexive thinking was woven into the tapestry of my unfolding researcher subjectivity in both conscious and subconscious acts. It was impossible not to think beyond human intentionality to make sense of the footage and to understand how my experiences and presence in the classroom were so influential. I recognised 'reflexivity' as a useful process that allowed me 'to examine how (my) presence or stance function(ed) in the relationship' (Pelias, 2011:662) with the children. I understood the process as extremely human-centred, and, therefore, it seemed counterintuitive and at odds within my post-human endeavours. However, rather than working against the term, I wondered how my growing sense of self-awareness might be implicated within the problem being addressed. I realised I was an observer, but an observer mostly of myself and the problem resided in the struggle to balance this closeness with the distance that I craved to make sense of my encounters.

I wondered how the deconstructed term ~~reflexivity~~ might function differently in a non-hierarchical arrangement of bodies (human and non-human) and discourses. I used Deleuze and Guattari's concept of '*assemblage*' to recognise how much more complex

my involvement with the phenomena at hand had become, through '(my) body and (my) bodies relations with other forms of life (…) emotional commitments and the repetitions that held everything in place' (Davies, 2016:7). The challenge was to remain vigilant to what new problems the deconstructed term ~~reflexivity~~ responded to and what new 'plane of thought it and other concepts might lay out' (Lenz Taguchi & St. Pierre, 2017:644). As discussed already, I became an observer to myself, recognising my own cognitive processes that actively forced me to question how things should be done and what things meant and this was an ongoing ethical conundrum. For example, the tension arose in understanding my emergent bodily responses that solidified in mutual arrangement with other forces, intensities and passions (Deleuze and Guattari, 2014). Drawing such non-hierarchical philosophies into conversation helped to reject 'moral judgement' (Davies, 2016) and suspend the values and measurements that one uses to judge oneself and others. Instead, I used ~~reflexive~~ practices to activate problems and concepts in the midst of the event and to generate new practices of relating with human and non-human others. Springgay and Truman elaborate:

> The problem, we contend, isn't the types of methods researchers use, or that new methods need to be invented. There is already an abundance of methods and experimental practices of doing research! We approach methods propositionally, speculatively, and experimentally and maintain that it is the logic of procedure and extraction that needs undoing. Research methods cannot be framed as a process of gathering data (2017:2).

In other words, ~~reflexivity~~ and ~~participant observations~~ understood relationally through a post-qualitative lens allowed for method to become entangled in non-hierarchical modifications 'of movement and thinking' (2017:2) with material, human and environmental forces. Thinking about method in this new manner and not clinging so tightly to associated discourses, required a process of 'exhausting terminology' (2017:2). Pillow (2003:175) argues for a move away from 'comfortable uses of reflexivity' to what she terms 'uncomfortable reflexivity' that interrupts uses of reflexivity as a methodological tool to foreground the complexities of doing engaged research. In this sense, I required a speculative process that allowed me to focus on how questions, such as who I am, who I have been, who I think I am and how I feel, affect the 'data' gathering and the process of making sense of the 'data' through a new ontological prism. Much akin to St. Pierre's (2011) re-theorisation of the practice of data 'analysis', I recognised the wider context of my ~~reflexive~~ practices, for example,

how I was sitting or standing, what activity I was engaged in whilst '*being*' ~~reflexive~~, what was my embodied response at the time? It became apparent it was in the '*doing*' of ~~reflexive~~ practices that I was enabled to reconfigure ~~reflexivity~~ as a human decentred term within the wider 'assemblage' and recognise the sensory, embodied, human and material encounters. Pillow explains:

> we do not escape from the consequences of our position by talking about them endlessly, I do not believe that the solution is then to stop talking about our position (2003:70).

Reconfiguring ~~reflexive~~ practices as part of a wider heterogeneous assemblage provoked a response to its limits within human-centred assumptions. Yet, in engaging with its limits, this opened an alternative mode of ethical engagement that continually questioned its own interpretations and its 'own knowledge production towards the goal of producing better, less distorted research accounts' (Pillow, 2003:71).

What I did with the video footage: The aftermath

It is pertinent at this juncture to offer an explanation for my choice to include 'still frames' in favour of extended video sequences to support my discussions. I exited the field with approximately 40 hours of video footage, recorded on two GoPro cameras, and instantly recognised the enormity of the task at hand to 'organise' such vast amounts. In truthfulness, half of the video footage has gone unwatched due to time restrictions. However, for the video footage that I did manage to watch, the process at first involved mechanistic methods, sitting at my home desk and electronically saving extended sequences of video within a series of numbered files on my desktop. The electronic files were categorised (under type of camera, child involved, date and length of sequence). I had no specific plan to extract one sequence of film over others and the whole process felt entirely mechanical, laborious and counterproductive. In moments of despair, I would refer to my field notes to recount specific times and brief descriptions of the livelier moments that had erupted in the classroom that day. I would locate and re-play those specific clips, hoping the action that unfolded would offer an opening. Instead, watching the film from start to finish resulted in the production of pedestrian and low-level, insignificant themes. There was often a sense of loss, a closing down rather than opening up, as I was forced to interpret my encounters through the constraints of the camera lens, which resided in a mundane and adult-centric view of the phenomena. From this phenomenological point of view of the world,

‘we are trapped like birds in a cage. This cinematic apparatus will not set us free. It only changes the cage that traps us’ (Denzin, 1995:37).

As frustrations grew, I pondered at the usefulness of the video footage. I had not intended to use it to re-present the world but to open potentials in its coming together with other human and non-human entities. Yet, the extended sequences of film continued to perpetuate the linearity that resided in beginnings, mid-points and conclusions. For example, playing video sequences meant physically starting and stopping the digital footage at various points, rewinding the action and subsequently making sense of the phenomena at hand in a linear manner, in order to count time lapses on the digital recordings. The process had become extremely human-centred, mechanical and repetitive and I required a new mode of engagement if I was to deter the possibility of generalisation.

New modes of engagement with the video footage

Through the deliberate ontological shift to ‘*sense*’ rather than ‘*make sense’*, I aimed to avoid writing ‘thick descriptions’ (Geertz, 1973) of the activities to re-produce the children as knowing and coherent subjects that were grounded in humanist perceptions. I looked to the video footage for potential that would ultimately take me elsewhere. However, this required a process that allowed freedom from constraints and structures that ‘disrupted linearity, consciousness and mind/body dichotomies’ (St. Pierre, 2011:621). Inspired by St. Pierre (2011), I noticed what I was actually doing when I thought I was ‘doing analysis’. St. Pierre calls this ‘*the physicality of theorising’* and states the ‘positivism imbedded in qualitative research quickly fails’, ‘it is never saturated’ (2011:622).

I started to loop sequences of film throughout the day set up on a monitor in the corner of the office. I intentionally avoided direct engagement with hours of video, yet I was aware of the various flickers, sounds and movements emanating from the recordings that caught my attention. This felt slightly uncomfortable and odd, as I busied myself with other activities, such as reading and writing. However, as the weeks progressed, I began to recognise the patterns, sounds, colours, objects and various bodies that dominated the screen, often the children’s articulations into the camera would draw my attention. I found amusement in their care-free attitudes, which ultimately resonated as I too became more ‘care free’ about the ‘data gathering’ and the

subsequent ‘analysis’ process. From approximately 40 hours of video footage, the thesis ultimately draws on several still frames that I have gathered from this unorthodox mode of ‘*video data sensing’*. The focus was on the ‘*doing*’ of the video gathering, rather than what the video ‘meant’.

In the coming ‘analysis’ chapters 5 & 6, I draw on the still frames using the language of *‘assemblage’* to offer the frames as ‘bites into’ (Jackson, 2016) the surrounding milieu of video, bodies, colours, objects and sounds. As discussed, we are coerced into the midst of the ‘still’ phenomena, which prompts further questions regarding the wider context and possible unfolding events. As I argue in those chapters, the spectator is left slightly unsure and dislocated, a sensation which operates through the still frame’s open-endedness.

At this juncture, and in order to illuminate debates, I present a short sequence of video, with the aim of provoking a sense of familiarity and human-centricity that I have worked so hard to trouble. In doing so, the extended classroom video (below – Clip 1) coerces the spectator to reside within the ‘what’ of the unfolding events. I suggest the video sequence offers itself to a regular and pedestrian account of activities in computer club that makes it difficult to dislocate our adult-centric view of unfolding childhood activities and behaviours. For example, although the footage is intriguing in many ways, the video seems to make me immediately default to making sense of the phenomena through social accounts, where I determine the child and teachers according to their behaviours, movements and dispositions with others. Elwick (2015) suggests this type of static view of the action does not help to destabilise the practice of looking for many. The critique of conventional video recording is developed further in the next chapter. I offer the video clip here as a provocation and a point of reference to ‘push’ against throughout the remainder of the thesis.

Clip 1: https://vimeo.com/258578229 (Password - Lucycatonthesis2018)

As an alternative, I suggest, the still frames presented throughout the thesis offer a sense of dislocation; they make us pause, attune differently, scratch our heads and wonder. Furthermore, I suggest this provides an opening to consider how the still frames exist not in themselves but through a complex set of relations within the open ended assemblage.

…and…and…and

This chapter has considered the field notes, GoPro camera, video footage, human and non-human bodies that operated along the horizontal and vertical axes, as sites of emergence that I theorise as '*assemblages*'. My writing has been an experiment in methodological thinking forward about the implications for reconfiguring method/ology within a Deleuze-Guattarian (2014) theoretical landscape. Rethinking and reworking my empirical study with child participants in this manner has not been an easy task and some of these tensions I have attempted to synthesise within my writing. I have highlighted the doodles and field notes created in the classroom, and made distinctions between the techniques of '*making sense'* of field notes and video footage and '*sensing*' the field notes and video footage, which has helped to dismantle the human presuppositions embedded within our participatory and reflexive practices. I suggested, at first glance, my field notes were built on human presuppositions, containments and 'false' understandings of what I thought 'right' and 'true' with the world. As an antidote, I set about deconstructing such human-centric terminology and practices, for example, ~~participant observer~~ and ~~reflexivity,~~ as a way of creating a space to consider those other entities (non-human, more-than-human) at play.

Inspired by Jackson and Mazzei (2012), who stress the need for researchers to use theories to guide rather than assume, I have started to recognise the 'how' of using concept as method in my empirical work. In doing so, I carved out a type of knowledge-making process that has been individual and nuanced within this specific field of inquiry. I suggest these deconstructed terms have begun to open '*method*' up and allowed for the recognition of those immediate, embodied and situated multiplicities of both human and non-human kind that unfold in carrying out research *'methods'* per se. The process has required the careful unpicking of qualitative terminologies in co-existence with recognising the situated-ness of my own encounters with the video phenomena at hand. My growing sense of self-awareness has meant a renewed attentiveness to behaviours, fragments and singularity, yet it has also encouraged recognition of my own entangled responsibility and accountability throughout the process, which has incited a new mode of ethics.

Chapter 4:

Navigating the disparate field of visual research theory and practice

Preamble

In the coming chapter, I review the literature relating to visual research theory and methodology, and the use of video technologies in research involving children. I discuss how this work has informed my thinking, fieldwork and approaches to analysis. I continued to read a range of literature that engaged more widely with video research practices implemented across the sciences, humanities and arts. Useful as these texts were in providing ethical and pragmatic guidance in dealing with the research field, there was paucity in considering the child, researcher and apparatus within a 'non-anthropocentric ontology' (Murrin, 2016:30). By this I mean, an ontological perspective in which the subject is not thought of as an individual with distinct boundaries, but spread out like a flow of energies in total interdependence with other matter, humans, intensities and forces. Tentatively, I engaged with a plethora of innovative research and key texts that set out to trouble positivist notions of object/subject, life/machine, adult/child and knowledge/value binaries. Some of the concepts at work in these texts have already been introduced in previous chapters. As discussed in chapter 3, the thesis draws predominantly from Deleuze and Guattari (1987 / 2014*) A Thousand Plateaus* and Deleuze's work on cinema (1989) *Cinema 2: The Time Image* has also been influential. I likened understanding Deleuze and Guattari to learning a new language, where the various stages of the language they use could be seen as contributing to the whole, none more significant than the other. By this I mean, their terminologies do not function as single definitions but work to provoke heterogeneous ideas and generative interrelations with matter and meaning. However, it was their claim that their theories might constitute a philosophy of practice, as discussed in the previous chapter, which captured my intrigue. The possibility of actualising 'philosophy as practice' became a polemic I worked hard to develop and apply to my video research with children in computer club.

At first glance, the literature review is scattered throughout various historical, scholarly and arts-based research texts. This is due to reviewing different sets of literature to respond to questions or considerations that were raised throughout the research. However, I concede that such disparate meanderings also offer a unique strength. Reading such disparate texts worked *'rhizomatically'* (Deleuze and Guattari, 1987/2014) as I made connections, detours and re-connections. For example, I considered specific methodological concepts in relation to visual practices that gave rise to and which themselves related to other concepts correlating with other practices, and the chapter aims to trace such diverse routes and re-routes.

The literature is presented in three parts - *Part One: Child participatory video research: An overview of approaches, Part Two: Early Scientific Cinema and the movement image, Part Three: Video experiments in post-qualitative inquiry.* The first part introduces some of the broader approaches to visual methods with child participants within this rather disparate field. I turn my attention to those studies using film as a way of co-producing data with child participants, where the knowledge emerges in the field through a process of collaboration. I will show that much of this recent work is derived from child-centred approaches to meaning making and the construction and development of ideas through the visual. The rationale for mapping this is to highlight a number of tensions and contrasting positions in relation to my own methodologically-driven video research in computer club. Tentatively, I engage with these tensions to theorise the agency of the video camera and the resultant video data itself in moving the field of child participatory video research in a new direction.

I suggest that there is a notable absence in this literature of any sustained engagement with Deleuze & Deleuze-Guattarian philosophies, and such an engagement might yield important insights into the phenomena at hand, which I later outline in part three.

Part two of the review takes an unlikely detour to trace the origins of nineteenth and twentieth century scientific cinema and those early attempts at recording bodies in movement. The review at this point is not a critique of media theory or a mapping of the complex histories of visual technologies. Instead, the utility of this detour within scientific cinema is to recognise how early visual practices were experienced and became meaningful in shaping the world but at the same time were being shaped by the world. These ideas served as a conduit for my own research using GoPro

cameras, to consider the device as something more than simply a tool to capture reality in a more efficient and convenient format. In the field, I began to think about how the digital camera was materially implicated in knowing the lives of the children, how the camera shaped those lives and, in turn, was deeply implicated in the formation of those lives (Ruppert, Savage & Law, 2013).

In part three, I draw on empirical work that has emerged from the recent 'ontological turn' (Rosiek, 2013) in social theory and research methodologies (Barad, 2007; Bennett, 2010; Hultman and Lenz Taguchi, 2010; MacLure, Holmes, MacRae and Jones, 2010; Jackson and Mazzei, 2012; MacLure, 2013; de Freitas, 2015). Unlike post-structuralism, which has its roots in the crisis of representation and focuses on discourse and meaning, I draw on empirical work that foregrounds 'the material and embodied nature of our intellectual habits' (Rosiek, 2013:694). Specifically, I draw on visual research that considers the material and embodied nature of our encounters and, as such, troubles those 'norms' and embedded ontological assumptions about what is real and right in the world. This is directly relevant to my own concerns, in troubling how I re-position those norms and assumptions produced within computer club as the children film. Rather than descriptions sitting outside of the experience (Deleuze and Guattari, 1987) that explain phenomena from a pre-fixed vantage point, I attempt to consider realities through a 'flattened ontology' (Hultman & Lenz Taguchi, 2010), which I further explained within my methodology.

I will review this literature, noting that it appears to engage in a much more sustained way with Deleuze (1989) and Deleuze and Guattarian (1987 / 2014) ideas. However, I will subdivide this literature so as to focus upon those studies that use Deleuze and Guattari to analyse video-based practices in educational settings with child participants and, as such, are directly relevant to my own concerns. I will argue that these studies are few in number and there still remains a need for theorising video as an encounter between participants', technology and researchers' mutual imbrications.

My main aim here is to explain the process by which I came to know and understand Deleuze-Guattarian notions and to communicate something of their qualities when put to use in the 'real world'. Later chapters of the thesis I devote to familiarising with specific concepts I have used within my own research, with a further discussion about the potential impact of their application.

Pt 1: Child participatory video research - An overview of approaches

This section traverses a breadth of work from the changing field of visual research, to consider how visual recording equipment and child participants are understood in different ways across social science and humanities research. All of these changes, I later discuss, relate to both video research methods and methodologies that have taken place in a context where the visual seems to have an increasing significance in children's lives (Stirling and Yamada-Rice, 2015) and where digital technology is increasingly more sophisticated, versatile and wearable. As the popularity of video-based methods continues to grow, I highlight tensions between visual research with human participants for scientific endeavour and those visual studies grounded in participatory methodologies. I present, on the one hand, those studies where the camera is used as a simple recording device and filming takes place according to specific rules and principles to yield certain ways of knowing. Equally, I attend to those studies that use film as a way of co-producing data specifically with child participants, not simply to report on external phenomena but to re-think film as integral to the research process. In doing so, I suggest this approach to visual methods opens up opportunities for interactions with a subject and for exploring realities in new ways.

The broad field of child participatory video research

In this section, I delineate the disparate field of child participatory video research to provide a broad characterisation of what these studies have in common and to consider how they work with certain ontological and epistemic assumptions and positions that I am seeking to depart from.

Over the last 20 years there has been increasing availability of small, affordable video cameras for educational research that has dramatically changed the field (Flewitt, 2006; Rose, 2010; Lomax, 2012, Wilson, 2017). The use of evolving and innovative technological equipment has incited a wider range of methodological possibilities for researchers wanting to provide an account of children's engagement with creative digital media. Participatory approaches have embraced video as a way for children to tell their own stories or communicate their own perspectives from a child-centred point of view. Therefore, new approaches to film making are often used to better understand

the experience of children and allow their voices to be heard. Hall, Pahl & Pool (2015), for instance, argue that it is important to put young people at the centre of meaning making and for them to construct and develop ideas through the visual.

I recognise it is customary to delineate the dominant field from which my study has emerged and aims to take in a new direction. As such, this section deals with child participatory video research grounded in children's agency, child-centred approaches and giving individual children a voice. Key debates within the child participatory video literature tend to focus on the impact of video recording, and the extent to which video data can be considered naturalistic and representative of the field (see Jewitt, 2012).

The studies below have been selected as they demonstrate how child participatory video research exists alongside the use of digital technology in children's everyday lives. The studies are invested in what I would argue is the dominant position in contemporary video research, where agency, autonomy and power are seen as bounded within the individual viewed as the locus of a privileged human-centred standpoint.

There is an increasing emphasis in video-based research on its potential to allow children to set their own research agendas and therefore contribute in more equal ways to research outcomes. As such, this rationale for video as affording greater inclusivity of children in research reflects a paradigm shift in the conceptualisation of children, from passive subjects to active, knowledgeable social agents (James, Jenks & Prout, 1998). This shift is associated with a range of innovative 'child-centred' approaches, which include participatory video, photography, collage, mapping, drawing and building to encourage children's expressions. This approach constitutes an important attempt to include children in the production of knowledge where previously it has been overlooked (Lomax, 2018). However, this has raised concerns about the privileging of children's knowledge and the valorising of a romantic image of the all-knowing and all-seeing child (Buckingham, 1991). Child-centred approaches to research assume an epistemological stance that portrays people as transparently knowable to themselves. This risks privileging individual 'voices' as the most authentic source of knowledge (Lomax, 2012; Mazzei & Jackson 2012). There is also a question of how children themselves may also inhibit both intentionally and unintentionally the participation of others (Gallacher and Gallagher, 2008).

Lomax (2012) highlights the paucity of research that pays attention to the dynamics of children themselves and the ways in which their evolving relationships may dramatically shape the participation process in creative visual research. The question of who participates and how is central to her concerns in developing creative approaches to child-led video and photography research. Lomax explored children's interactions with the adult research team and with each other as the children filmed, interviewed and photographed the housing estate in which they lived. Lomax focussed attention upon the situated practices of the children during the filming process that offered a more nuanced understanding of the dynamics between children and researchers. The research initiated an understanding of how children's voices might be created and diminished and the types of social dynamics the children had to manage throughout the participatory video process. My research draws on Lomax's methodological attention to the way that children's voices are heard differently in research encounters and her account of what such participatory visual methods bring to research with children. Her work is also useful as it draws attention to children's embodied engagement within the participatory research process. For example, how children played, skipped and posed for the camera and how these activities constituted part of their everyday movements around the housing estate in which the research took place. I draw on this type of research that makes visible children's perspectives in ways that disrupt adult-centric presuppositions, to offer a more nuanced account of children's social connections within everyday life. However, my work also departs from this viewpoint, as I suggest Lomax's work remains grounded in object and subject dichotomies where the adult researcher judges the children from a privileged position in order to extract meaning from each encounter. Instead, my work attempts to move away from this ontological position to understand the children, the camera and the video footage from a much more human de-centred viewpoint, where voices, agency and human subjectivities are entangled with non-human others. As I discuss in later chapters, my attempt at taking child participatory video research in a new direction has repercussions for how we might re-conceptualise researcher roles, for example, how we challenge the object and subject divide and negotiate the re-distribution of power amongst diverse bodies (human and otherwise).

In order to interrogate the visual researcher role a little further, I draw on Mannay (2010), who employed visual methods to suspend her own researcher perceptions of

a familiar research territory. Her work explored the usefulness of enabling participants to collate their own visual data (photographs, film, drawings, collages) as a technique for making a once familiar housing estate strange, in order to generate a new perspective without the interference of a researcher. Mannay's work has helped me to re-think how I might suspend my own preconceived ideas in a familiar primary school classroom, in order to break down the subject/ object divide and challenge the dominant epistemic privilege of the researcher over her subjects.

Cutter-Mackenzie, Edwards and Quinton (2015) used classroom-based video to generate discussion with teachers around what they believed the children were learning through play, as well as to solicit the children's own perceptions of their play. They considered the challenges of using video-based methodological approaches and suggested strategies for minimising the impact of researcher subjectivity and reflexivity in a 'child-framed' research context. They identified key issues to be considered when using video-based methodologies, namely researcher assumptions, ethical dilemmas and the children's self-analysis through video data interpretation and analysis. In order to minimise the impact of researcher subjectivity, they developed a reflexive approach to reduce and monitor the effects of their presence within the social interactions that unfolded. Reflexivity was offered as a technique for engaging with the potential subjective nature of visual research by recognising the researcher's position in the project and its influence on the data collection process (see also Pink, 2007). This required some degree of self-examination, so that the histories, backgrounds and experiences were accounted for, whilst also providing a reference point for understanding how the data was recorded and collected. To further minimise the impact of researcher subjectivity, they used multiple video cameras in conjunction with a field diary to provoke disruption and provide multiple perspectives of the action. Similarly, I used multiple camera configurations (head-mounted, chest-mounted, roaming and static) configurations to illuminate multiple perspectives of divergent and co-existing bodies (human and otherwise) that occupy the classroom space.

Lomax and Casey (1998) note that video data are often assumed by researchers to be a true representation of the experience. They argue that the video equipment has a distorted effect on the researched phenomena and that the researcher's subjectivity influences the direction of the video data collection process. They suggest that a

reflexive approach to analysing the impact of researcher presence is essential in video-based methodological inquiry, in order to gain full insight into all aspects of the phenomena being studied. I found these approaches useful to consider my research participant role within filmed events in the classroom and how my presence changed the dynamics within each encounter with the children. However, as discussed, I consider encounters through a different ontological prism where human agency, subjectivity and desires are mutually dispersed and are entangled with the equal forces produced by the technology, environment, materials and other matter at hand.

In understanding the role of the body in children's communication, researchers have exploited the digital potential of recording equipment to open up a new way of considering children's realities. For example, using fine-grained analysis or more naturalistic video data that closely imitates real life to understand the role of the body in children's communication (Flewitt, 2006; Hackett, 2014)

Flewitt (2006) used visual technology to collect data in classroom interactions to unveil how young children use the full range of material and bodily resources available to them to make and express meaning. Her study was grounded in 'multi modal' approaches recognising the significance of children's body movements, eye contact, facial expression and the manipulation of objects to supplement or replace spoken communication. Flewitt turned the recording devices on the participants, in order to analyse the micro movements and modes of communication that rendered object/subject, child/adult dichotomies within the research process. Flewitt used ethnographic approaches to challenge Vygotsky's relationships between thought and language, in order to provide a much more pluralistic interpretation of the construction and negotiation of meaning. The ethnographic research problematised some of the challenges that emerged from the use of multi-media tools for data collection to offer multiple avenues to arrive at multiple 'truths' reflecting different participants' perspectives. Flewitt reduced her visual, audio and written modes of data collection into tables that were made available for systematic analysis.

I suggest this is a much more reductionist approach, in opposition to my open-ended and 'rhizomatic' method, which engages with both human and material encounters that are mutually imbricated within unfolding encounters. For example, Flewitt would argue that she is taking account of bodies and more-than-language in her approach

but I suggest she does so from a privileged human positionality. Instead, my study accounts differently for how bodies might be recognised through a 'flattened' (Hultman and Lenz Taguchi, 2010) orientation of the world. One that provides a much more effective way of breaking down dominant discourses, terminologies and practices that have contained hierarchical ways of understanding human beings above other forces and materialities. As such, my study contributes to recognising what a child's body might become in new entanglements with materials and environmental forces.

Locating my research in a way that helps to decolonise children and childhood indicates a commitment to a new ontological orientation and is therefore different from those scholars who have an interest in the politics of knowing from a 'child-led' or 'child-centred' point of view that 'have routinely excluded nonhumans, other-than humans and more-than humans' (Taylor, 2016:23).

I draw on Flewitt's idea of multiple 'truths', but I do so from a much more de-centred human positionality. To further explore the idea of multiple truths, I attempted in my research to offer extra visual dimensions to more traditional research methods using the GoPro in multiple configurations around the child's body. Presenting different perspectives of the classroom using the GoPro in various orientations, I have created new relationships and a unique situated insight into classroom interactions, as previously suggested, from a much more decentred human viewpoint.

In citing the studies above, I argue that the dominant approaches to video research still render the researcher as a singular figure; one who casts an analytical eye over the phenomena at hand, in order to generate meaning from an ontologically privileged position. In this sense, visual researchers using child participatory methods are able to interrogate their positionality whilst still standing back from their subjects. Simply put, even though video research is often separated into two distinct types, for example, scientific and participatory, my argument is that both construe the researcher as an ontologically detached subject. In contrast, my work with video-based methods aims to recognise the researcher as mutually imbricated within the production and analysis of the video.

The studies cited above have been useful to further understand the practice of reflexive thinking and to recognise the implications of researcher subjectivities on the collection and analysis of video data. Such studies are grounded in binary logic where

the researcher sets herself apart from the 'participants' within her inquiry. As such, reflexive practices are imbued with agency and power that persist within the binary logic of adult / child and object / subject. My study attempts to encompass reflexive practices, as I believe it is important for visual researchers to recognise their backgrounds, assumptions and experiences that contribute to unfolding events. My study rejects, however, the grounding of such studies in human-centred ontologies, where agency, autonomy and power are bounded within the individual from a privileged human-centred standpoint.

The challenge comes in moving the field of child participatory video research in new directions, in order to create innovative visual methods to open up opportunities that understand the world from an alternative ontological position. In chapter 6, I explore and theorise how 'video-blogging' and 'do it yourself' type documentary filming might be used as a technique to acknowledge the agency of the video camera and the resultant video footage. I negotiate the theorisation of the technology in mutual imbrication with the child participants and researcher to illuminate multiple realities of the classroom.

The participatory studies discussed above are invested in the position that knowledge comes from the field setting, through the process of co-collaboration, and that children draw from their surroundings in order to make meaning. The studies cited have emerged from the dominant field of literature that attempts to recoup digital technology as a 'good thing' to understand children's lives and wellbeing. Marsh (2004), for instance, discusses findings from her study, which aimed to identify the 'emergent techno-literacy' practices of a group of 44 working class children in the North West of England. She argues that children's engagement with mobile phones, iPads, computer games and television should be valued as reflecting the range of contemporary digital texts with which they interact. Furthermore, she suggests such techno-literacy skills need to be built upon in the early childhood curriculum. Flewitt, Messer & Kucirkova (2015) extend these arguments and suggest how iPads offer innovative opportunities for early literacy learning that stimulate children's motivation and concentration. An interesting aspect of their study was the rich opportunities that digital technology offered for communication, collaboration and interaction, and for children to achieve high levels of attainment in the classroom. In some cases this led

teachers to re-evaluate the children's competencies in the classroom and allowed children to construct positive images of themselves. I extend these arguments to suggest that I am also interested in what kinds of opportunities the GoPro camera offers to the children in computer club, but I propose this as a two-way relationship. For example, I asked how the children influenced the use of the GoPro camera, but additionally recognised how the GoPro camera shaped the lives and the experiences of the children.

Another contemporary debate in child participatory video research involves the visual ontologies that lie behind the making and viewing of video data (de Freitas, 2015; Caton and Hackett, 2018 forthcoming; Harwood and Collier, 2018 forthcoming). As de Freitas points out, the dominant approaches to dealing with video in educational research tend to focus on "viewing the video attentively, describing the data, identifying critical events, transcribing, coding, constructing a storyline, and composing the narrative" (2015:413). As video footage becomes increasingly commonplace and easily obtained during fieldwork, researchers need to be cautious about "the risk of naïve empiricism" (Elwick, 2015:325), where video data is not just reality captured in a more convenient format (hence debates around the partiality of video data). Elwick (2015) recommends a focus on the intersection between participants, images and audiences, in order to avoid video as crude empiricism. The thesis attempts to consider both the agency of the video camera and the resultant video data itself, where the video takes on a life of its own, and can evoke the emotions of the field (Pink, 2009) or grab the researcher with an intensity and affect (Millei and Rautio, 2016).

Ruppert, Law and Savage (2013) highlight the need for researchers to become alive to the ways in which digital devices are simultaneously shaped by social worlds and can, in turn, become agents that shape those worlds. So the question becomes how digital devices and data get assembled into specific apparatuses to 'know' social and other relations. The authors provide an example of digital platforms, such as Twitter, that materialise new forms of sociality, shaping worlds and ways for people to interact and know about themselves and others. At the same time, the authors suggest Twitter gives rise to various knowledge practices and analytical methods used by academic researchers, data journalists and police surveillance units, which are shaped by social worlds. Ruppert, Law and Savage suggest these digital social science methods and

their devices are deeply implicated in the formation of human subjects. Rather than simply exploring what can be revealed and understood through such devices, it becomes important to explore how digital devices themselves are materially implicated in the knowing of lives, an issue that I explore in chapters 5 and 6. I suggest such arguments are useful to foreground the camera as materially implicated in the child's visual meaning making processes, in ways that also allow us to break free from the conventional ways of using and handling cameras. The children in my study wore a GoPro in a variety of positions on the body, including the head, chest and in the hand, to construct and share their ideas visually. Unlike other child participatory video-based studies, I foreground the camera in these scenarios to draw on the rawness and immediacy of the experience that works in relation with the children as they navigate the space together.

I have demonstrated how the digital is increasingly being utilised to facilitate collaborative relationships within the research process, and teased out some problematic assumptions and ethical considerations that arise when applying such methodologies. Stirling and Yamada-Rice (2015) warn that children may not see filming as co-collaboration, as the device and its connections ultimately have a history and a relationship to the researcher. Such pragmatic and ethical deliberations are important for my own research and there are some important distinctions to be drawn in terms of 'ownership', 'consent' and 'choice' in how the Go Pro camera was presented, the knowledge that it yields and who this might be shared with. My thesis attempts to contribute to some of these ongoing debates through the prism of a 'post' theoretical lens.

Troubling the researcher 'gaze' in child participatory video research

Kindon (2003) deployed 'feminist' practices of looking by challenging conventional relationships of power associated with the 'gaze' in her geographic research with child participants. Elwick (2015) offers methodological reflections on how the head-mounted 'baby-cam' influenced attitudes of practitioners towards babies' interests and sociality. This large-scale research project set out to study infants in Australian early childhood education and care settings. The author questioned what we might perceive differently if we look at one filmed event through two different camera technologies,

one of which was the ‘baby-cam’ and one a static camera. The ‘baby-cam’ was a small digital-camera system comprising a digital camera and sound-recording equipment attached to a hat that was worn by the infant. The device recorded what the babies were attending to and deployed a type of technology that preceded the more sophisticated GoPro camera used within my study at computer club. The participatory research set out to remind researchers of the limits of their own ‘gaze’ and ways of knowing and theorising infants.

In Elwick’s (2015) study, ‘baby-cam’ acted as a ‘disruptive visual’ (Holmes and Jones, 2013:96), helping to enhance viewers’ sensitivity towards the ways in which their own habitual practices of looking diminished infants. I draw on the ‘Baby-cam’ study, specifically, to consider those features and nuances that went unnoticed on the static camera in computer club, which, if explored, may stimulate debates about what can and cannot be known about the children. I draw on the author’s suggestions that baby-cam extended the viewer’s perceptions, for example, by bringing the interior of a basket, located on the floor of the nursery setting, into closer and clearer view. The camera attached to the babies’ hat recorded the nuances in light and shade along with the textures on the weave of the basket, which would not have otherwise been seen by the researchers or practitioners who were present. Elwick explained that this view ‘amplified’ variations on the visible only through the use of wearable technology. In contrast, she concluded that the images recorded on the static device did not help to destabilise the practice of looking for many early years practitioners. In this sense, the images from the static device drew on/re-established the hierarchical power relations between object and subject, as practitioners were able to apply meaning easily to what they perceived and sensed as a continuation of the mundane visible world from their adult-centric position. Such debates in child participatory video research continue to be addressed in considering the kinds of cameras and perspectives used and what different views these perspectives might make available for knowing children’s realities (Hackett, 2014; Hall, Pahl & Pool, 2015; Caton & Hackett, 2018 forthcoming; Harwood and Collier, 2018 forthcoming).

Such studies attempt to disrupt the adult-centric position and routinised interpretations and this, I suggest, is enough to stimulate conversation and debate regarding what can and cannot be known about children, and what viewers should be attempting to know about children. The increasing use of small digital recording devices mounted,

fixed and held by children as part of the recording process, I propose, enables children to 'participate' within research processes by generating their own data, thus, 'showing where and when their experiences occur, with greater freedom' (Elwick, 2015:16). As children generate their own data, they also shape the context out of which their experiences and thoughts are known. However, as I have argued, the children are also shaped by the technology and are not autonomous agents implied in emancipatory approaches.

Video studies such as this are utile, as they begin to reveal and productively destabilise relations of power between adults and children, researcher and subject, to reveal unnoticed dimensions of interactions involving young children (MacLure, Holmes, Jones & Macrae, 2010; Hultman & Lenz Taguchi, 2010; De Freitas, 2015). However, there still remains an ongoing struggle in fully escaping from the privileging of the human within these video research approaches. There is an overriding focus on the visual at the expense of the other senses and movement. I take this one step further, as the thesis attempts to explore what the digital may open up in this endeavour, in order to disrupt habitual ways of thinking about human-centric actions.

Wearable/ portable cameras in participatory video inquiry

The portability of video cameras has advanced the capacity of research to attune to movement, enabling researchers to better understand children's everyday lives 'on the move' (Christensen and Cortés-Morales, 2015; Kullman, 2012; Powell, 2017). Such studies helped to address the fleeting nature and improvisatory practice of filming with children in computer club, where the more interesting footage captured the momentary conversations and interactions between individuals and groups that created a distinct 'do it yourself', documentary-type film, the implications of which I discuss in the coming chapters.

Hackett et al. (2015) used a range of cameras including flip cameras to record across contexts from schools to museums spaces. Their video research made clear the act of visualising children and young people and their individual stories, as much as it did the communities within which the filming took place. This video research highlighted

the visible aspects of individual and community interactions, including how specific individuals acted and engaged, how groups worked together and the role of community as a creative force. The research team found it helpful to think about the role of video in the production of social relationships through the generation of both linguistic and visual ways of knowing. Such studies are useful for my research, in thinking about the portability of the GoPro camera. For example, how the film produced can be used to engage with understanding the wider discursive and popular practices of video-blogging that children create and engage with on social media platforms such as YouTube. Yet I would also argue that the ideas of Hackett et al. (2015) are still embedded in human-centric ways of understanding the world, where the human subject is granted a privileged position over other matter. My own visual work still remains concerned with the child's welfare and modes of participation but from a much more de-centred ontological stand point, as discussed in the previous section.

Wearable cameras are increasingly being used in child participatory research, which has enabled 'automatic' capturing of still or moving images over longer periods of time, generating large datasets (Caton & Hackett, 2018 forthcoming; Harwood & Collier, 2018 forthcoming). I draw from these studies to consider the limits of visual research with child participants in computer club, where filming competes with those other modes of expression and communication that the children are drawn to doing, for example, singing, dancing or even contemplation. In terms of research with children, one current debate centres on levels of children's participation and agency within automatic capturing of video footage, along with the ethical issues implicated (Robson, 2011).

Wilson (2016) set out to identify the unique affordances of using automatic wearable cameras over a static device to collect data from her patients, who were children and adults. The images were recorded on wearable sensecams, a life-logging device that allowed the participants to visually record various aspects of their day automatically, which were then used to measure human activities, patterns and routine. The author used the 'raw' footage to prompt further discussions around the photographs. The author offered the wearable camera as an 'alternative visual perspective', however, her ontological approach remained embedded in perspectives based on conventional interpretation in making meaning from the video 'data' generated. For example, the

human subject is provided with a privileged position and distinguished as a system of motor mechanical parts, where movement is measured against dominant physical and cognitive developmental paradigms. I suggest this manner of knowing the human subject is deeply embedded in early nineteenth and twentieth century scientific film that focussed on material culture, technology and human physiology as routes to knowing a more efficient, replicable and standardised human subject (de Freitas, 2015).

Wilson's (2016) study departs from my own viewpoint, where I consider the child participants, the camera and the images as agents within the filming process. I suggest this moves our thinking beyond the motor mechanical movements we initially perceive that contain the child as a 'socially' constructed entity within our video research practices. Studies such as Wilson's serve to highlight the dominant use of representational ontologies across the sciences and humanities that yield and perpetuate certain types of knowledge and hinder others. I argue that the technical capabilities of recording equipment used in modern research are still frequently rendered within traditional manners of knowing the 'subject' and that we are far from understanding what the full potentialities are for the digital in knowing the lives of others (Rupert, Savage, Law, 2013) in mutual imbrication with the human. I draw on these dominant visual methodologies to identify tensions around 'the extent to which video should play a supporting or additional role to fieldwork and the extent to which aesthetics and messages carried by the final video product should be foregrounded' (Hackett et al., 2015:434). I would argue that the purpose in paying attention to the aesthetic qualities of the image is to re-present in visual form the physical, intellectual, and emotional encounter with the subject of the research, foregrounding conversations about what is concealed or revealed through non-verbal explorations.

There is a distinction to be made between positivist video research, in which researchers aim to have as little impact as possible, for example, those scientific approaches discussed in the healthcare study (Wilson, 2016). There are also those cross-disciplinary studies that draw from the video using different ontologies, for example, Pink and Leder-Mackley (2013), as routes to knowing other people's realities. Within the disparate field of participatory video research, researchers have spent a significant amount of time considering positionality, their role and what unfolds. However, I argue that both approaches to video research still render the researcher

as an ‘outside’ figure, casting an analytical eye over their subjects in order to generate meaning. In contrast, my work with video-based methods aims to recognise the researcher as mutually imbricated within the production and analysis of the video footage.

Within these distinctions, there is little accounting, therefore, for the researcher as an integral part of the knowledge and meaning-making process, particularly as digital technology becomes more prevalent within research design. As discussed above, embodiment, senses, desires and histories have the capacity to affect each video encounter that researchers co-create with the child participants. The position outlined by Haw and Hadfield (2012) perpetuates the underpinning notion that video research is something we do to others and continue to stand back from and observe, rendering those object and subject dichotomies. Relatedly, there is the issue of whether arguments for video research as co-creation or empowerment (Yamada-Rice, 2011; Hall et al., 2015) are compatible with less humanist approaches that envisage distributed or non-human agency, which includes the agency of the digital video technology and the digital software. I attempt to address some of these debates throughout the thesis.

The discussion of the literature so far has attempted to discern the broader landscape for situating my own video research with children in digital skills club. The ethical and practical considerations highlighted have been useful in navigating the day-to-day pragmatics and undertakings of working in the field with the children and visual technology. However, the literature discussed thus far does not account for the increasing range of choices to be made from a greater range of possibilities for how the digital camera could or should be used. For example, the children and I experimented with the potentials of the small digital recording devices that could equally be worn, mounted or incorporated into the action in a number of ways. However, the amount of footage created was considerable and these quantities needed to be dealt with in a practical way. The literature discussed so far has been useful to recognise the significant gap in research that addresses the role of the digital and the potentialities of ‘data’ and camera as materially implicated. In part 3, I draw on empirical work grounded in ‘a reflexive realism and an ontology of the future’ (Rosiek, 2013:692) that has inspired a new wave of visual methodological innovations. I turn to the studies grounded in pragmatic philosophies that are

located in ideas about the relationship between inquiry practice and future possibilities. I do so in order to help interrogate what visual researchers are bearing witness to, when cameras,
children and researchers come together.

Pt 2: Early scientific cinema and the movement image

In this section, I examine some of the most significant visual technologies used in the production of nineteenth and twentieth century scientific film. I highlight how early cinematic apparatus served as a corner stone in attempts to record the body in motion and thereby incited a long standing conundrum of making time palpable. I negotiate early sets of conventions to trace the lineage for those dominant visual discourses still prevalent in education video research. De Freitas (2016) suggests that early sets of conventions 'used in the capitalist over coding of the human body' (2016:554) during the industrial age still dominate our understanding of the body today within visual methods. For example, practices that render a human body as a series of motor mechanisms that can be coded and used for standardised educational practices. The author's concern is that video data has now become the most common form of data for educational research and that such practices are often applied without reflection or reference to philosophical work in film and media studies. I take up the challenge in response to such concerns, using historical references as conduits to re-think the human body in radically new ways, where the body is no longer the mechanical body, the body that is used for control, but a body that forces us to consider what else it can become.

Early scientific cinema and experiments in human physiology

The cinema, a technology designed to record and reproduce movement, is deeply indebted to physiology, both practically and ideologically. The first continuous photographic records of movement came from studies of locomotion in animals and humans, conducted in the 1880s by Eadweard Muybridge. He used a series of stationary cameras to produce a series of still photographs that were the functional equivalent of the succession of individual frames in a cinema film (Erickson, 2011:179). Cartwright (1995) uses the term 'scientific cinema' to trace the history of optical techniques and the moving images that set the ground for the contemporary

visual analysis of the body in medicine. Motion picture was regarded as an apparatus suited to the study of physiology and the author explains that experiments in human physiology were a central force in the emergence of such apparatus, designed precisely to record and represent the body as a living, moving entity.

In 1895, Lumière and his brother invented the cinematograph, an instrument for the recording and projection of living motion. After 1900 Lumière's work and much of the production of the Lumière catalogue turned towards medical research and production (Doane, 2002). The most significant accomplishment was not his work on the cinema but his laboratory research on tuberculosis and cancer and by the end of his life Lumière relegated the cinematograph as an instrument of mass culture that simply observed and recorded but did not appear to intervene or better the body physically (Doane, 2002). Simply put, the recording equipment was not recognised in mutual imbrication with the human body as first planned but positioned as a tool to film the subject from a distance. Parker and Calzettoni (1995) explain that the fascination of the earliest Lumière screenings was generated with a projected still photograph, which, at the time, was a form of representation familiar to the viewer. The authors describe still images being propelled into movement so that the work of the technology could also be seen as a spectacle in its own right. In this sense, I consider this an early example of film representation of time in cinema occurring, whilst temporalities for the viewer were also formed through the structuring of their time.

The idea of film structuring the spectator's temporality persists in mainstream thought and still contributes to the overwhelming idea that film must be experienced rather than described (de Freitas, 2015). Early cinema helped incite multiple temporalities of time and it is useful to discuss them. There is the temporality of the 'mechanical' equipment, the temporality in which time is represented in the image, the use of flashbacks and, finally, the temporality of the spectator. Doane (2002) addresses how early cinema structured spectators' temporalities;

> everything about the theatrical setting, the placement of the screen in relation to the audience, the darkness of the auditorium and its enclosed space, encourages the spectator to honour the relentless temporality of the apparatus (2002:30).

These ideas are useful in thinking about the film produced in computer club. I am not simply a passive observer, but drawn into temporal relations with the film in context

with the surroundings. As a visual researcher, I am able to look away from the film in the comfort of my home office, however, something is lost and this is felt in doing so. Even in early cinema, stoppage and editing allowed the film to construct its own temporality. It is useful to consider the temporal limit of the cut and the interruption in the linear forward movement of the film in which the frame also constitutes a spatial limit, much akin to the wide-angled frame produced by the GoPro camera. In this sense, The GoPro camera still renders a spatial limit within its frame of shot for the audience: despite all its other digital capabilities, we are still only invited to 'see' a certain portion of action.

As discussed, the scientific cinema genre dominated the first decade of film and was seen as part of an ongoing interest in capturing and documenting the figure of the human body. However, scientific film was not only used for medical purposes, it was also implicated in the task of tracing the movement and changes of the body's systems and processes for the labour market and surveillance (Doane, 2002). Doane notes that Taylorisation was the most notorious of those techniques of surveillance, for providing the strict management of time through the work of Frederick W. Taylor, who 'isolated the crucial gestures of a worker, calculated how they could be most efficiently performed, and timed them with a stopwatch' (Doane 2002:5). Factory bosses incentivised workers to perform at their most efficient, which reduced the time of a particular operation to a minimum. The overall aim was the mechanisation of the human body, which was fully consistent with the development of the assembly line. This is useful in considering how scientific film contributed to the generation of a broad cultural definition of the body as a characteristically dynamic entity, which could nevertheless be calibrated and controlled; one that was suited to motion recording technologies like the camera. Drawing on these histories, I am able to trace how the subject has come to occupy new notions of time and space that are central to the way we live structures of temporality within our lives today, through television, radio and film, which are frequently understood through time-based motion.

The Cyclograph: Theorising time and the problem of representation

In the late nineteenth century, there was widespread effort in physiology to isolate the instant and make 'an invisible time optically legible' (Doane, 2002:45). Frank B. Gilbreth, a disciple of Taylor's, demonstrated how the desire to rationalise time was frequently embodied as a desire to make time palpable (visual). Gilbreth attached a

small electronic light to the limb of a worker and used a time exposure camera to photograph the movement. This produced a continuous line in space, which he called the 'cyclograph'. Often the figure disappeared, for example in the photograph (below) entitled 'Cyclograph of an Expert Surgeon tying a knot', leaving the movements of the surgeon as curves of light. This marked a change in thinking in relation to epistemologies of time, in order to think about how the subject engaged new ideas of time and space.

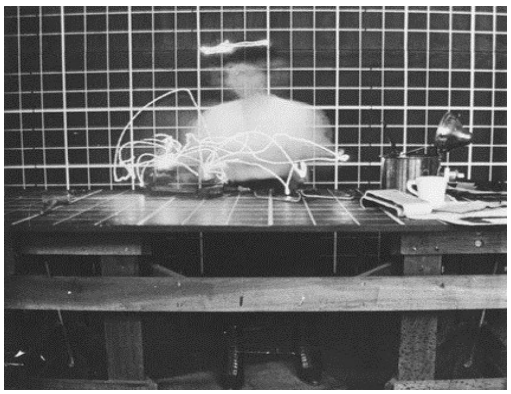

Figure 5 (Motion efficiency study, 1914. National Museum of American History, Behring Centre, Division of Work and Industry Collection)

The dilemma of discontinuity and continuity of time became an epistemological conundrum that structured debate about the representability of time. Etienne-Jules Marey (1874) theorised time as a problem of representation. His work in the field of physiology focussed on time incarnated in physical movement, gaps and discontinuities in the recording. His practices oscillated between graphic inscription (which provided a continuous record of time) and chronophotography (which detailed gaps and discontinuities) within the image in which he accounted for. The subject was photographed against the black background and the result consisted of only lines and curves in space. Marey argued that indexicality was fundamental for understanding representation and he directly associated indexicality with the object from which movement occurred. Therefore, movement and time could only be understood through an object or human and not through the gaps or discontinuities in film frames. The body's movements had to be measured by the direct source for the tracing and this involved a complex arrangement of tubes and other connectors between the body

and the recording device; he referred to this type of tracing as ‘automatic’ (Cartwright, 1995).

Narrative cinema and the structuring of time

Doane (2002) explains the actualities that dominated film production up until 1903 gradually lost ground with the popularity of narrative cinema. Around 1907, real world re-enactments disappeared as a genre, which had no real narrative or sense of linearity. In 1908, many films emphasised story elements tied to temporality, with a growing emphasis on clocks in the mise-en-scène and suspense as a structuring agent. Time flow was now an imaginary one, situated in the realm of fiction and mimicking a sense of ordinary everyday time. Making the event ‘present’ to the spectator, re-enactment was a kind of transitional object between real world scenarios and the narrative of film. Techniques such as pans, shooting in depth and non-eye level angles were taken up by narrative films to enhance their realism. In actuality, the time of the image was determined to a large extent externally; ideally the time of the image and the time of the referent would coincide.

The camera’s relation to ‘real time’ and movement through narrative quickly became a dominant method of structuring time, as cinema contended with the desire to produce time as effect (Doane, 2002). Freud (1955) and Marey (1874) resisted the cinema because it adhered to the senses and they required instead an understanding of psychoanalysis or physiology (scientific knowledge). However, Freud, Marey and cinema all grappled with the relations between time, storage, representation and legibility. They each collaborated to perceive time as a persistent problem that held two different understandings of representation; representation as the record, trace and inscription of time that was elusive (outside itself), and representation as a production of temporalities, where time was internal to the representational system. For the former, time could be measured through movement and duration and this understanding of representation persisted and is evident today but at the cost of thinking about time as elusive.

Henri Bergson and cinematic movement

In 1907, Henri Bergson attempted to reconstitute movement from static states or instants; he claimed real movement escaped the grasp of both. Bergson rejected any claim that cinema might make to represent the truth of time or movement. Instead, movement for Bergson (1988) took place in the interval in the transition between states

and not in their accumulation and this explained the unreality of cinematic 'real time'. Therefore, he suggested movement could not be reconstituted from the immobile or things that do not change.

Bergson (1988) attempted to reconstitute movement with a series of still photographs. He explained that in order to produce the illusion of movement there must be a real movement somewhere else. He located this movement in the apparatus, the projector which moved the film forward. Bergson explained that the movement of the projector was always the same and succeeded in abstracting a kind of general movement from the individual and the particular movements recorded by the camera. He claimed that movement slipped through the interval, those moments of change; therefore, the cinematograph could only produce an illusion of mobility.

Bergson's rejection of the cinema as a representation of time posed problems for Gilles Deleuze, who wrote two volumes on the philosophy of cinema (1986, 1989). Deleuze used Bergson as his theoretical framework and claimed that one way of overcoming the problem was to consider that things were 'never defined by their primitive state but by the tendency concealed in this state' (1986:235). In this sense, Deleuze allied cinema, movement and time to a philosophical machine. Deleuze suggested that Bergson's misunderstanding of the cinema's true capabilities was linked to locating movement in the projector and, therefore, into a 'homogenous mechanical time subject' (1986:45). In this respect, Bergson believed that cinematic movement was reducible to the 'immobile sections and abstract time' (Deleuze 1986:50). Deleuze positioned movement not within the apparatus but located it in relation to the spectator; for the spectator, movement was an instant involvement in relation with the image. However, Deleuze and Bergson acknowledged that cinema gave us a real movement and both time and movement could not be simplified and allied to duration.

Gilles Deleuze: Early scientific film and the 'theory of cinema'

Deleuze (1986) characterised early scientific cinema in terms of the *movement-image*, an image that locates our desire to interpret human movement in terms of mechanical cause and effect. Deleuze points to a new kind of post-war cinema that breaks with the conventions of the *movement-image*. This new cinema operates through notions of the *Time – Image* (1989) that connects with human movement in radically new ways,

where time makes visible the movement of bodies through space. His theories are useful in thinking about the concepts that cinema gives rise to and which are themselves related to other concepts correlating with other practices. Deleuze's 'cine-system' (Coleman, 2011:6) can be applied to any screen based media that has the capacity to express image, sound and movement and is, therefore, relevant for my own study with GoPro cameras in thinking about the body in a radically new way. Classic cinema, according to Deleuze (1989), maintained the subordination of time to movement but modernist cinema (1960s and 1970s) demonstrated that the cinema was capable of producing an image of pure time, free of movement. Even classic cinema disengaged movement from bodies through processes of montage and the camera movement but it failed to extract movement 'for itself'. For example, classic cinema left movement attached to elements, characters and things, which served as a passage.

Deleuze, in '*Cinema 2: The Time-Image'*, claims that the philosophy of *'any instant whatever'* built into the technology of the cinema is in line with Bergson's theory of time, insofar as it allows for thinking the production of the new, which can be connected to any moment where meaning lies in the process of emergence and surprise. The notion of '*any instant whatever' (1989)* becomes cinema's new concern, which consists of expressions captured in snap shots of time, diagrams, photos and film. Deleuze's concept is useful in considering the fascination associated with the camera's ability to catch moments, despite the physical placement of the camera and the planned or tightly regulated modes of structuring the process of recording.

'any instant whatever' and avant-garde cinema

I draw on Deleuze's notion of 'any instant whatever' (1989) to capture a snap shot in time within the emergence of 1920's and 30's avant-garde ethnographic films, for example, Jean Vigo's '*Taris, roi de l'eau' (*1930*) and* Philippe Soupault's '*Le negre'* (1927). Ellis and Mclane (2005) state that this was a time when avant-garde directors were beginning to use innovative filming and editing techniques, such as montage and fluid camera work and fragmentary narratives, to create impressionistic, poetic, quasi-documentary works, which also interrogated the relationship between viewer and film (Hanhardt, 1976). This is useful in considering how the GoPro camera used in computer club might work to capture a snap shot of the children's realities and, thereby, incite a relationship between the viewer and the film. Clifford (1981) outlines

how ethnographic film shared a partial overlapping history with surrealism by tracing the inter-connections in 1930's France, where surrealists and ethnographers shared an interest in the realities that were repressed by the classifications of Western rationality, and looked to 'primitive' cultures and to the unconscious as sources of disruption (Holmes, 2012). 'Ethnographic surrealism', as defined by Clifford, works to 'provoke manifestations of extraordinary realities drawn from the domain of the erotic, the exotic, and the unconscious' (1981:118).

Engaging with conventions of 1920's and 30's surrealist film is useful in thinking about child realities that are repressed within classroom spaces. Children are remanded in classrooms by the physical spaces, dress codes, discourses, signs, symbols and regimes and so I take inspiration from surrealist film that used provocative aesthetics to incite disruption within those dominant ways of being. For example, Germaine Dulac's (1923) '*La Souriante Madame Beudet'* is a short silent film that brings to life the fantasies of a repressed housewife, using a suite of visual techniques. Dulac used slow motion, distortion and superimposed images to paint the various emotional states of the housewife on screen that served to dislodge the onscreen character from the familiar surroundings of the home and create a new set of temporalities for the spectator.

I recognise how the GoPro camera, used by the children in computer club, serves as an 'unconscious source of disruption' (Holmes, 2012) within the homogeneity of the classroom. The children, I will argue later in the thesis, used the GoPro camera to record fragments of their realities, creating an extremely individual account of their world that breaks free of the dominant ways they are controlled within the classroom space. Instead, the children have the opportunity to draw on 'curious collections and unexpected juxtapositions' (Clifford, 1981) that catch the eye as they navigate their space with the GoPro camera in the hand or fixed to their upper body.

Summary of early visual practices

The discussion of early scientific cinema has been useful in addressing the challenge of situating visual research practices within philosophical work in film. Through a sustained engagement with early visual practices and by drawing on Deleuze's books on cinema, I have found provocations to consider an alternate way of engaging with the human body. I look to the GoPro film through the prism of a 'time-image' (Deleuze,

1986) in recognising the children's bodies as less a 'phenomenological organism with built-in 'I can' cognitive and motor capacities, and more an indeterminate crystalline contraction and expansion of intensity' (de Freitas, 2015:318).

Engaging with cinematic histories has highlighted the important role that films have played in captivating audiences and, thereby, recognising spectator temporalities incited off screen. For example, 1920's and 30's surrealist film created spectacles to disrupt the repression of Western categorisation and those dominant ideologies of time. Audiences looked to the aesthetic pleasures of surrealist film as a form of escapism and liberation. I take inspiration from such visual emancipatory practices, in foregrounding the GoPro camera as a tool in such pursuits of escapism for children in the classroom. I envisage how the children might use the GoPro camera to draw on their curiosities and desires at any one moment, inviting an audience to be drawn to the phenomena of 'any instant whatevers' (Deleuze, 1889) in pursuit of an alternate reality.

Pt 3: Video experiments in post-qualitative inquiry

In previous sections, I considered how throughout history the camera has repeatedly been seen as an objective machine that captured information without any interference from the artist, especially in the early years of photography and film. I now turn to exploring visual research practices that acknowledge a kinship between the object, the subject and the image, that go beyond the photographic apparatus in extending the kinship well beyond our eye.

I open the coming section by delineating a niche field of work that is in closer proximity to my own ontological-driven research with children and cameras. I draw attention to child participatory video research that uses insights from the pragmatic philosophies of Deleuze (1986/1989) and Deleuze and Guattari (1987/2014) to enable something more to be said about children's lives within community and educational settings. I review studies that question the 'relative humanness of child'; that seek to re-think child subjectivity as a 'transgressive counter-image (…) neither as prospective saviour nor as victim' (Lenz Taguchi, Palmer & Gustafsson, 2016:707). In considering the figure of the child as a creation of potentialities, these studies break away from and go beyond normativity and become productive in providing young people with a

somewhat ‘less constrained’’ position within an educational context, as well as in society (Olsson, 2013).

Hultman and Lenz Taguchi (2010) challenge the habitual anthropocentric gaze used when analysing educational visual data ‘that takes human beings as the starting point and centre, and gives humans a self-evident higher position above other matter in reality’ (2010:525). The authors use a Deleuzian-inspired theoretical framework with Barad’s (2007) notions of ‘intra-action’ and ‘diffractive’ methodologies to analyse two preschool playground photographs in detail. The authors discuss the child as emergent, ‘where non-human forces are equally at play in constituting children’s becomings’ (2010:526). For example, a picture of a young girl playing in a sand box works to continually ‘pose questions’; the girl and the sand are trying to ‘make themselves intelligible to each other as different kinds of matter’ (2010:527) within ongoing relations.

Hultman and Lenz Taguchi’s seminal paper has proved fundamental in highlighting how decentring the child can also be applied to destabilising the fixed identity of the researcher as standing outside of the event and analysing the data. Instead, they explain the ‘data’ has a ‘constitutive force’ and works upon the researcher as much as the researcher works on the data. The ultimate aim of doing such research and analysis is to make it possible ‘for others (humans and non-humans) to live differently in realities yet to come’ (2010:540).

Such conversations are effective in contemplating how the GoPro camera and the child produce digital images and increase my attentiveness to the things, artefacts and surroundings that can be overlooked in favour of language and interpersonal relations. Thereby, my research does not seek to organise or capture those material relations that emerge within the film, but engages with and is ‘moved by that which seems to enchant and move the children’ (2010:540) within the space. Paramount to this is to interrogate those ‘supposed’ clear borders between the child and their surroundings, the researcher and the video data.

Lenz Taguchi, Palmer and Gustafsson (2016) explore Claire Colebrook’s theorisation of a ‘*Queer Vitalism*’ that ‘provides a thought of life beyond the human’ (Colebrook, 2014:126), allied with Deleuzian notions of ‘*individuation*’ and ‘*becoming-imperceptible*’. The study takes place in an experimental dance class with pre-

schoolers aged 1 – 2 years. The analysis is carried out using video, filmed by the children in dance workshops, to understand constructions of subjectivity. The film is transformed to still photography in order to theorise how children sometimes 'exceed established dance practices and patterns of bodily movement, to explore the limits of their own bodies' (2016:707) that are not predetermined by practice as usual (Deleuze and Guattari, 1987). The authors consider the individual agents in the performative assemblages of bodies, space, artefacts and cameras. I draw synergies with my own work with children and cameras, as I attempt to theorise the camera and the resultant video as it 'becomes something else as an effect of the interactions in the body assemblage' (2016:708).

Such nuanced and rare studies in educational video research highlight the usefulness of Deleuze-Guattarian concepts in both pragmatic and valuable ways that attempt to detach otherwise normalised educational practices and make it possible to explore the limits of what a body and camera that are mutually imbricated can do and become in conversation with philosophy.

Deleuze (1986/1989) saw the mode of film as an example of a form with the possibility to change our very perception, and so alter the possibility for thinking and imagining. Ivinson and Renold (2016) take up the challenge of using film to map camera and girl assemblages, in which they explored young people's experiences of growing up in a post-industrial Welsh mining town. The authors posit the camera as a 'post human participant' (2016:169), drawing attention to the camera angles that helped to 'reterritorialize' the ways in which the 'girls traversed' their familiar community surroundings. The authors suggest the camera worked to displace the threatening male gaze that had dominated the girls' ways of knowing their bodies in the community, replacing it with a specific and purposeful gaze of the girls' own choosing. The camera formed a crucial performative role in a more-than-human assemblage that created 'a new experience of moving (…) allowing the girls to be released of their bodies' (2016:180) and the 'objectifying male gaze that kept the girls' bodies in place' (2016:180). Normative ideas of gender, power and sexuality were troubled to consider how a multiple 'gaze' is experienced through a post-human assemblage of girl and camera.

The video produced offered a unique perspective on the ebbs and flows of the filming process, from a unique set of vantage points chosen by the girls. Similarly, I use a GoPro camera in my study that also relies on several different angles to capture the children's realities in the computer club classroom. Ivinson and Renold's (2016) study is instrumental in considering the critical use of camera angles in child participatory video, as performative and extending beyond simple surveillance techniques. For example, the unique camera angles recorded on the GoPro in my study are shot from a child's height using the chest harness, head harness, and roaming device. The GoPro camera technology is relatively new and there are few studies using this approach, and so use of the camera in various configurations around the child body offers the chance to think in a fresher way. I contemplate how the nuanced frames may work to 'reterritorialize' (Deleuze and Guattari, 1987/2014) the space of computer club within a post-human assemblage; in this sense, how the camera forms a crucial performative role to destabilise those normative containments of children's subjectivities within the classroom

Recognising the visual ontologies that lie behind the making and viewing of video data in such research scenarios with child participants is also important. It is all too tempting to consider video footage as either a comprehensive record of the field or as a mirror of reality.

Hansen's (2002) book '*New Philosophy for New Media'* focusses on what is fast becoming the new media artefact, the 'digital image'. For Hansen, the digital image can no longer be restricted to the level of surface aesthetics but must be considered within the entire process by which the image is made perceivable through our sensory and embodied experiences. This is the core of his approach, as many studies focus on the ontological problems raised by digital technology. Hansen foregrounds the co-evolution of the body and the image in mutual imbrication and his work has inspired how I have come to ontologically recognise the GoPro camera and video data produced in mutual entanglement with human bodies.

MacLure, Holmes, MacRae and Jones (2010), influenced by Deleuze's philosophy of cinema (1986/1989), set out to challenge the dominant use of classroom video in education research. Their primary aim was to disrupt the linear researcher 'gaze' and ways of 'seeing' children and classrooms in video research. The authors forced their

'video vision to jam or break' (2010:544) and, therefore, embraced 'a more open array of responses that (were) less burdened with the weight of prior assumptions' (2010:547). I have been influenced by editing techniques used in this classroom-based ethnographic surrealist film; the eight minute spectacle of a short film consisted of both still and moving classroom footage. The authors juxtaposed a broad range of images soaked in cultural, political and biological references, for example, a Butoh dancer in white-body make up, surrealist cartoon figures, burning puppets and a music box ballerina, to work in dichotomy with the multiple figures of child. Each image was carefully selected by the team to provoke meaning and response within this complex interplay with the child figure and the wider associated discourses. The film incited a powerful and emotional response in its audiences, provoking revolt, sympathy, anger, pleasure, silence, yet it provided a voice (power) to some of the children featured, who may not necessarily have had one. Such video experiments are useful to consider why some images are selected over others and what is contained in sequences of video footage that do not necessarily make the final film or analysis processes. Responsibility for filming was maintained by the research team, in distinction to my own study where control over the recording is shared or given entirely over to the child, and this, I suggest, engages with a new set of ontological and ethical considerations. I recognise there is a need within this developing field of work to explore the ontological potentialities for the use of video in an auto ethnographic or participatory manner and my thesis hopes to address some of these challenges.

De Freitas (2015) highlights the dominant approaches to dealing with video in educational research, which tend to focus on 'viewing the video attentively, describing the data, identifying critical events, transcribing, coding, constructing a storyline, and composing the narrative' (2015:413). The author points to a new kind of video research that connects with the body in radically new ways, by highlighting the dichotomies at play between 'the non-thinking body' and those advocating for 'embodied cognition', or the thinking body. The author's work draws on Deleuze's notion of the 'time-image' (1989) that helps to think beyond normative visual perceptions in classroom video research. Inspired by digital artist Leonardo Solaas and his visual experiments using computer algorithms, de Freitas uses Doodl, an online drawing robot that feeds on digital images by drifting over the surface of the screen. The algorithm operates to decode colour intensity that translates the data into various speeds and directions of

the flowing lines that are drawn. The aim of the experiment was to generate a 'dynamic diagram for (…) moments in classroom interaction' that slowly built layers upon each source image and that offered 'a way to tap into a new dimension for each 'frame' (2015:325). The study offers an inventive yet pragmatic approach in visually translating the materiality of 'learning assemblages' (de Freitas & Palmer, 2016) through digital experimentation with light and shade. Light is explored as performative energy within the 'assemblage' that forces the spectator to encounter the image differently, where 'the eye is no longer the usual optic device, looking for resemblance, looking for the line, but becomes haptic' (2016:328). I suggest such experiments are useful to decode the digital images created by the GoPro camera to open beyond normative representations of children. I consider the potentialities of digital software and those other hidden performative entities that emerge through the image pixel, for example, light, textures, shades and colours that can be tapped into as alternative routes to knowing children's realities.

Rose (2016) explains the 'haptic eye' is a term used to emphasise the way bodies can be experienced in new ways through close encounters with images. Marks (2000) offers a metaphor of 'haptic visuality' to foreground the way film can reach audiences through its materiality and 'through a contact between perceiver and object represented' (2002:xi). Marks suggests vision can be tactile, as if 'touching a film with one's eyes' (2002:xi).

This understanding of the term 'haptic visuality' allows me to engage with the affective impact of the computer club film and how my body and senses are at the 'centre of this critical practice' (Rose, 2016:81) of viewing and analysing the video 'data' produced. My researcher 'gaze' becomes haptic, attuning to the colour, texture and shades that are prominent and produced directly by the blurred and indiscernible content often created using the roaming camera. This manner of sensing the data provokes wonder and curiosity, beyond thinking about the child as 'social' phenomena and I wonder what more might it open up.

Olsson (2013) puts to work some of the key concepts offered by Deleuze and Guattari (1988/2014) that she aligned with young children's strategies for learning in the classroom. The focus of her paper was the importance and the conditions needed to listen to children's questions and take them seriously. Olsson incorporated still images

from three different classroom-based projects that enabled access to children's drive for learning using concepts of 'assemblage', 'event' and 'affect'. One of the key discussions was the need for children's creative thoughts to be acknowledged, not because they are more 'natural' or 'creative' but 'because they are not yet completely stuck within orthodox thought' (Olsson, 2013:251). The study demonstrated how children have the capacity to act through joining their bodies with the bodies of the crayons, the ink, the mirrors, the paper and, thereby, 'becoming one with these materials through engaging in writing in an affective way' (Olsson, 2013:250). Tracing the interactions between bodies, materials and environment offers a way to think without subject and to consider how children, cameras and the surroundings of computer club may work within similar performative assemblages. I draw synergies, to offer a way of considering the child beyond a single subject, but as multiple, in order to 'better' understand how they are collectively caught up in the filming process.

Moving the inquiry forward

In summary, my study has emerged from recent contemporary classroom video research with child participants that recognise human and material-discursive entities as mutually imbricated. Engaging with diverse studies that disrupt the researcher gaze, decentre child subjects, use conceptual language as a method and recognise recording equipment in a performative manner, have carved a route for my research with child participants and GoPro cameras in a school setting. However, where my study differs and contributes methodologically to video research is the theorisation of the GoPro device and the resultant video that performs in co-existence with the child and researcher that no longer privileges the vertical (Deleuze, 1989:254).

By situating my thesis within the early practices of scientific cinema, I have recognised how film was experienced and became meaningful in shaping the world but, at the same time, how the film was being shaped by the world. I have learnt to engage with the GoPro camera beyond a simple tool to capture and record reality, which has led me to question how the camera and the resultant video are materially implicated in knowing the lives of the children and how multiple animations of the classroom might be recognised.

As discussed, the central assumption of my thesis is that agency is not located within one single subject. This has prompted a reconfiguration of familiar research terms

that presuppose human condition and privilege over other matter. My work might be seen as an experimental space to disrupt human privilege that is woven into the texture and contours of qualitative research terminologies and practices. In the coming analytic chapters, I attempt to deconstruct familiar research terminologies and practices that have been used to contain ways of knowing children. For example, I recognise the child subject, camera and video data within a non-hierarchical, open-ended system of events. I pay special attention to how we might foreground materials and other 'more-than-human', 'other-than-human' (Taylor and Hughes, 2016) entities within the video footage. I do so, to illuminate the materiality of the 'learning assemblage' (de Freitas and Palmer, 2016) and to trace the co-evolution of the body and digital image in mutual imbrication (Hansen, 2002).

Chapter 5:

Becoming Researcher: Sensing children's socio-material entanglements

In this chapter, I examine how the child, camera and resultant video footage work materially and in relation to illuminate multiple animations of the classroom. The chapter draws attention to several still frames, taken from footage recorded by children using a GoPro camera at the school-based computer club. I carry out aesthetic experiments with the pixelated still frames to present a 'haptic' visualisation and a route to re-imagining children's realities in a classroom. I do this, drawing on ontologies inspired by Deleuze and Guattari (2014) that have the potential to transform both researcher and child subjectivities in the process.

> In this thinking (…) children and childhood become subjective systems, characterised by continuous change and alteration so that they are no longer (in)complete bodies, but perceivable as alternative epistemologies,

> in which dynamic processes are ongoing, being both subject and object of perpetual change through de-territorialisation. (Sellers, 2010:563)

I engage with the camera and the video footage by experimenting with the digital pixels to create a haptic sense of the world, where bodies, objects and the environment all work in concert to produce something new. I consider the coming together of the child and camera as a 'territorial assemblage' that 'borrow(s) from all the surrounding 'milieu(s)' (Deleuze and Guattari, 2014:366). In this sense, components such as objects, bodies, light and materials function as forces, which collectively and individually form various milieus. These disparate components operate through a non-directional and chaotic space that becomes functional in carving a route 'in the heart of chaos' (2014:362). What shapes the territory of child and camera is the emergence of matter that is presented through a haptic visualisation of the world in experiments with the video footage. I use the term 'territory' to define child and GoPro camera relations. I draw from Deleuze and Guattari (2014), who critique ethological associations of territory with aggression, relating to those histories and relationships amongst certain species. Instead, I attend to the 're-organisation of the function of territory' as an aesthetic act, a 'result of art' that is not only the 'privilege of human beings' (Deleuze and Guattari, 2014:368).

To explore the idea of a territory as an aesthetic act between human and non-human relations, rather than aggressive relationships amongst species, I draw on several still frames. I interrogate what the language of assemblage and 'milieu' (Deleuze and Guattari, 2014) may offer in knowing beyond initial perceptions of the video footage. In putting these notions to work, I attempt to reconfigure how the child-camera territorial assemblage functions as an aesthetic act to offer something new in the process. As discussed, I use the video footage to experiment with the potential of the pixels as a route to sensing a more 'haptic' visualisation of the world in computer club and what this might offer over a conventional optical vision. I draw on Marks' notion of haptic vision that 'invites a look that moves on the surface place of the screen for some time before the viewer realises what she or he is beholding' (2000:172). I also draw on de Freitas and Palmer's (2016) discussions that consider a haptic vision where 'forces are touching and linking up materially in ways that cannot be perceived' (2016:1216). This manner of visualising draws on the senses, rather than on the pure

optical, to work beyond initial perception, leaving the viewer 'vulnerable (…) and unsure of their relationship to the image and the knowledge it implies' (Marks, 2000:177).

I take up the challenge of sensing the world through a haptic visualisation in conversation with Deleuze-Guattarian philosophies that recognise matter and meaning as coexisting. These notions also extend to those concepts that I hold in my imagination of children and childhood and what this may imply within a Deleuzian-inspired paradigm. Thereby, I am forced to interrogate my researcher 'gaze' to recognise a new way of 'being' with matter, rather than a new way of 'knowing' matter. This shift in thinking involves a reconfiguration of my senses and perceptions and the children's bodies as objects, along with those wider discourses associated with the figure of the child.

I recognise how materials, bodies and discourses act as components of surrounding 'milieu(s)', as human and non-human forces work mutually and constitutively to disrupt those normative practices of educational video research that persist in hierarchical arrangements. By this I mean, for example, hierarchical arrangements in which educational visual researchers often view video data through the use of pre-fixed terminology to label and categorise child subjects. Such knowledge assumes precedence over the child but also the researchers' own performative understandings and re-imaginings of themselves in the video production and 'analysis' processes. Furthermore, the categorisation of human phenomena fails to account for the power of both material and non-human forces that emerge and unfold within the encounter. I join ongoing conversations (Hultman and Lenz Taguchi, 2010; Olsson, 2013; de Freitas, 2015; Lenz Taguchi et al., 2016) to challenge such assumptions and make visible alternative entanglements of matter and meaning through digital experiments with the source video.

Reconceptualising video 'data'

I recognised the choices made to foreground certain sequences of film over others that emerged in moments that drew my 'attention across the surface of the screen (…), intensifying (my) gaze' (MacLure, 2010:282). MacLure (2010) describes this

process as ‘data’ that ‘glow’ and, in this sense, the material had agency in what was said and done from the outset. The ‘glow’ as a conceptual tool offered a way of attending to masses of video footage. For example, rather than watching hours of footage in a linear and divisive manner, I digitally experimented with the visual/audio software in which the footage was saved. Using the capacities of the software, I frequently skipped over and/or sped the video through moments of disinterest, pausing to slow down or stop at those fragments of video that ‘started to glimmer’ (MacLure, 2010). I often pondered on the specific qualities of the ‘data’ that drew my attention in this manner, since I was not able to ‘recognise an example right at the point of its emergence’ (MacLure, 2010:282). However, drawing from MacLure’s original theorisations of ‘data’ that ‘glow’, the fragments worked beyond the specific content of the image, instead making connections ‘re-animating’ my experiences of filming with the children on the day. In this sense, I was unable to pre-plan how the video footage would work on me in these strange and surprising ways. The video ‘data’ incited an intensity that acted beyond its immediate content and context, enabling a recollection of incidents and experiences from the research field ‘that generated sensations resonating in (my) body as well as the brain’ (2010:282) that coerced a closer look into the phenomena at hand.

Conceptualising the GoPro camera and the footage using language of assemblage

As discussed, the thesis operates through a post-qualitative lens that acknowledges life lived as a ‘rhizome’ (Deleuze and Guattari, 2014), where matter and human kind engage relationally to transcend normative frames of reference. The GoPro camera and the resultant video footage operate as conduits for recognising the filming process as ‘rhizomatic’, where the data generated is enriched with the complexity and chaos of many fleeting moments that catch fragments of children interacting in ‘de-territorialising’ (Deleuze and Guattari, 2014) ways. As children take the GoPro camera on dalliances around the classroom space, albeit for short bursts of time, the process captures their attention and the ‘rhizomatic’ approach is affirmed. By this I mean, the human and material engage relationally in regards to the children’s involvement as participants in the research and the generation of the video footage.

Filming by the children readily flowed and often captured moments that I overlooked from my adult-centric view. The GoPro camera became their way of framing events as they unfolded, often accompanied with verbal narratives that were filled with imaginings of 'fantasy' and 'reality'. These human-centred moments were hard to overlook and occurred regularly throughout the fieldwork, providing an ongoing sense of tension between aims to decentre human agency, yet recognising the children as competent auteurs. It is hard not to note how the children used the GoPro camera to demonstrate their capabilities in communicating their insights and experiences of computer club, whilst simultaneously handling the camera with great aptitude and dexterity. It is Isaac's (a child participant) video footage that enables the discussion within the coming chapter. Much of the video registers those fleeting moments where the spectator is invited to participate in the child's various articulations of movement, dance, song and gesture performed into the camera frame. Through this invitation we are encouraged to;

> postpone the temptation to be critical, listening instead to how its conditions for expression make it singularly what it is, allowing the (video) to open itself up to its own creative impulse. Here, the (video) is (understood) not in relation to general ideas, but as its own formative force. (Manning and Massumi, 2015:2)

As such, I theorise the camera and the resultant video footage as performative to disrupt expectations of a technical performance of achieving a specified standard for filming educational video. Instead, I work with the activity of the performance using Deleuze-Guattarian (2014) conceptual language of '*assemblage'*, rather than the performance of filming itself. In other words, filming with the children in computer club was not about attaining a certain level of performance of a particular standardised approach to video research with children. Rather, the videos' performance involved matters of interrelationships within the filming process and demonstrating relational spaces and/or thresholds between child bodies, objects, forces, camera and researcher. I achieved this through the conceptualisation and experimentation with the high definition digital recordings. My working with video research in this manner illuminated happenings, irruptions and fleeting moments in between spaces and to move away from the given or representational towards a 'child-camera' assemblage that was generative of potential possibilities.

As discussed, I recognised child and camera encounters through the language of ‘assemblage’ (Deleuze and Guattari, 2014) that enabled a ‘slowing down’ (Horton and Kraftl, 2006; Rautio and Millei, 2017) of the research process. In ‘slowing down’, I was able to reconstitute myself (researcher) as becoming part of the surrounding milieu(s) as I read the footage multiple times, self-reflected and revisited notions of subjectivity. Colebrook (2014b) suggests ‘the self is given positively through the objects it desires, then it makes sense to see certain privileged objects as the outcome of a pre-individual’ (Colebrook, 2014b:247). In this sense, the video footage worked in a performative manner, changing my (researcher) subjectivity as I formed new insights and perceptions through my ongoing experiments with the digital pixels in the source images. Deleuze (1994) explains that each modification of an individual is preceded by micro-perceptions or encounters, for example, the research video might be repeated in my body, creating not a different part of my body but a different potentiality - a modification - not in the ways I act but the ways in which I am acted upon (Colebrook, 2014b) and subsequently think differently about the video footage in an ongoing process of relations. Therefore, the role of perception in understanding the video footage is not one of recognition but one of participation in the video. The aim is to examine the video for how it is alive and generative of new ways of being and not as a reductive explanation of children’s behaviours. In particular, I show how educational video can be re-animated through new materialisms ‘less deterministically and more through chance and indeterminism’ (de Freitas and Palmer, 2016:1207).

Mindful of both practical and methodological considerations relating to the video footage, the salient question became not ‘what the images meant’ but, ‘how they worked’. I shifted my approach to attend to the video ‘selection’ and ‘analysis’ processes in an alternative manner. By this I mean, the process of ‘selecting’ the images to accompany my writing became far less onerous. I chose obscure camera frames and angles to work as aesthetic provocations that activated thought and helped to mobilise concept (Manning and Massumi, 2015). I drew into conversation the conceptual language of Deleuze and Guattari (2014) and this approach enabled both concept and method to work constitutively to break down the theory and practice divide and produce new insights and understandings into the phenomena at hand.

‘Researcher-video footage-camera’ assemblage

I began the project contending with hours of video data in a systematic and divisive manner, which felt at odds with a post-qualitative methodology. The paradigm shift to consider the footage as performative rather than representational meant that it did not make sense to subdivide the video into footage that was useful or not. Instead, I attuned to the footage from the inside (Barad, 2007) in a ‘researcher-video footage-camera’ assemblage (Deleuze and Guattari, 2014), whereby the ‘analytical’ process became a retelling of a different kind. I focussed on the quality of recordings and the potential of the pixel became an unlikely ally in this pursuit. I initially recognised myself as the data collector, a subject of the research that continually appeared in the children’s footage. Engaging with the video ‘data’ (MacLure, 2010; Koro-Ljungberg and MacLure, 2013) was a decentring experience, where I thought less about my positionality and adult-centric view and more about the material, colours and intensities that constituted the image and my ongoing sense of involvement. As discussed, these individual vibrant moments caught my attention and a ‘glow’ emerged (MacLure, 2010). I foregrounded the potential of the digital pixels in a move to disrupt the subject and object divide and help to move beyond literal interpretations of the children and their school-based context. The research field notes provided ‘bite-size’ reminders of the broader context. Yet, my annotations read as a comprehensive retelling, which took away from what was experienced when looking at the video footage. The process became less about understanding the broader context of computer club and the specifics of the children involved. This is not to argue that context is unimportant, however it was not the central focus in this alternative methodological inquiry.

Potential of the pixel: tracing the material conditions of ‘Child-Camera’ Assemblage(s)

In this section, I examine how post qualitative notions of matter radically reconceive the nature of education video research with child participants. The materiality and discourses that intertwine within the production of the video far extend what can be ‘literally’ viewed, for example, conversations that were had on the day of filming, the laughter and jokes with the children, the noise and chaos, the technical problems, the humid heat and low level lighting in the classroom. Each of these entities in

performative ‘assemblage’ (Deleuze and Guattari, 2014) were mutually constitutive in the recording of the video and more is at stake than just understanding the actions of the child we perceive in frame. De Freitas and Palmer discuss the idea of a ‘*learning assemblage’* that is

> a provisional configuration of things, teachers, children, learning theories, curriculum, values, power/knowledge relations, architectural and special arrangements, forces of desire. (de Freitas and Palmer, 2016:1202)

These configurations are not always perceptible, and emerge and become utile in complex ways. I attempt to reach beyond consciousness and trace some of the aesthetic acts that provide the ‘child-camera’ assemblage with its functional qualities. To do this, I explore the material conditions that produced the still images and what this might open up, to create matter that matters (Barad, 2007). I experiment with digital software that allows for the perceptibility of other performative phenomena by drawing the pixels into relation with the material conditions that produced the video (camera, bodies, colour, light, materials, textures, objects). I experiment with the pixels, not simply as a distortive practice, but as ‘a power of imaging that is not oriented to the eye of recognition, the eye that views the world according to its own already organized desires’ (Colebrook, 2014b:101). The potentiality of the pixels worked by ‘drawing attention back to the world-forming power’ (Colebrook, 2014b:101), thereby, the digital pixels become ‘matter’ that can be played with in reconfiguring video 'data' and both child and researcher subjectivities in the process.

Making sense of the video ‘data’ through conventional socio-cultural terms

Figure 5 – Still frame from roaming camera video (source image of girl – tongue – camera)

I draw attention to the still frame (figure 5), a source image taken from an extended sequence of video, and ask - what does the GoPro camera used as a roaming device offer in 'seeing' the children differently? I begin the process by describing what the image means in conventional socio-cultural terms that depict Rebecca, a nine year old girl. Rebecca is in the midst of positioning the GoPro camera under the PC monitor, situated out of frame. Her face is central and relatively close to the camera, she sticks her tongue out to address the audience in a somewhat characterful and cheeky manner. My 'gaze' is immediately drawn to her tongue prior to my noticing her facial features, for example (glasses, hair and skin tones). However, resisting an anthropocentric lens and not focusing on the child and her features and behaviours, is very difficult (Hultman and Lenz Taguchi, 2010). Haraway (1988) reminds us that binaries reinforce hierarchical thinking, since there are two parts to the binary that sit in opposition. For example, Rebecca (above) gestures to the audience with her tongue stuck out; her tongue plays an important signifying role that associates itself with normative ideas regarding how children ought to behave in school. The tongue in the image produces a powerful effect that might render the girl as cheeky and disrespectful, in some sense as exemplifying 'bad' behaviour. I extend these arguments to suggest, in contrast, that an absence of the tongue may lead to a re-categorisation of Rebecca that sits in stark dichotomy with the child as 'cheeky'. Instead, the absence of a tongue may reconfigure Rebecca as compliant and respectful, an ideology frequently aligned with how 'good' children should 'learn' to behave in school. The tongue thus becomes a powerful component within these

categorisations of child, and its presence, or otherwise, alters how we respond to the image. Rebecca is positioned within one of two binaries - 'bad' and 'good'. We make assumptions about the girl solely based on these stark categorisations, due to our perceptions and the associated wider discourses that are rendered by the tongue. The tongue is an organ that sits at the forefront of language and the body and is integral to the production and synthesis of language and human communication. However, it is also a piece of flesh that reminds us of those bodily impediments of language and the animal characteristics of our constitution and I suggest that the experimental images offer an opening to engage with some of these ideas. At this juncture, I would like to explicitly draw distinctions between the immediate subheading of '*Making sense of the video data'* and the forthcoming subheading, '*Video data sensing'*. Making sense of the video 'data' is representational and is dedicated to saying what something means, whereas video data sensing taps into forces and relations within those unfolding encounters, as I will later explore.

'Video data sensing': Milieus, territories and 'more-than-human' encounters

In order to respond to the question 'what does the GoPro camera used as a roaming device offer in 'seeing' the children differently?, I consider how the child and camera assemblage pass into new assemblages by means of 'deterritorialisation' (Deleuze and Guattari, 2014). I consider the still frame (figure 5) to be a moment of 'deterritorialisation' as the territory of child and camera 'bites into (…) and seizes (…) their surrounding milieus of objects, bodies, light, colours and materials. In this sense, the child and camera territory opens up as it 'borrows from all other internal and external milieus' in computer club that assume a special function 'at the heart of the territory' (2014:381). Deleuze and Guattari (2014) explain that every milieu is coded, for example, bodies are coded with DNA, objects and materials are coded with synthetic or natural fibres whilst digital images are coded with bitmaps of 1s and 0s. I draw on the idea of coded milieus to consider both human and non-human entities working together in computer club that are individually coded, yet can be immediately recoded through new configurations with other entities. I use the term coded milieus tentatively, as normativity generalises the coding of bodies and materials through a linear, hierarchised and 'centralized arborescent model' (2014:381). However, I use a 'rhizomatic' model that no longer functions to enforce dualisms and that 'speaks of the system as a whole' (2014:382). In this sense, I relate to the child and camera

territory as a whole system that comprises of internal and external milieu working in relation to change and recode the system as a whole. Deleuze and Guattari explain that 'milieu slide in relation to one another, over one another (…) every milieu is coded (…) but each code is always in a state of transcoding' (Deleuze and Guattari, 2014:364). For example, the camera has an external milieu of materials (rubber casing, glass lens) and interior milieu of composing elements (microchip, battery, wires), the children too have external milieu (skin, hair, nails) and interior milieu (organs, DNA, blood vessels). There are annexed milieu of source energy, actions and perceptions. They are annexed because they work in relation but not in direct contact to the child and camera encounter. As discussed, both human and non-human systems are always open to change through these 'rhizomatic' and decentred processes and open, inter relations.

In the coming section, I trace how the source image (figure 5) acts as a moment of 'deterritorialisation' (Deleuze and Guattari, 2014) where the child and the camera territory opens up, in order to draw from its surrounding milieu of objects, bodies, colours, light, forces and sounds. To do this, I use the source image (figure 5) to experiment with the digital pixels to define new territories of expression and reach beyond initial perception that perceived the child as a 'socially' constructed subject.

Video data sensing: Illuminating multiple animations of computer club

Figure 6 - Still frame from roaming camera video, experiments with pixels (1) (girl – tongue – camera assemblage)

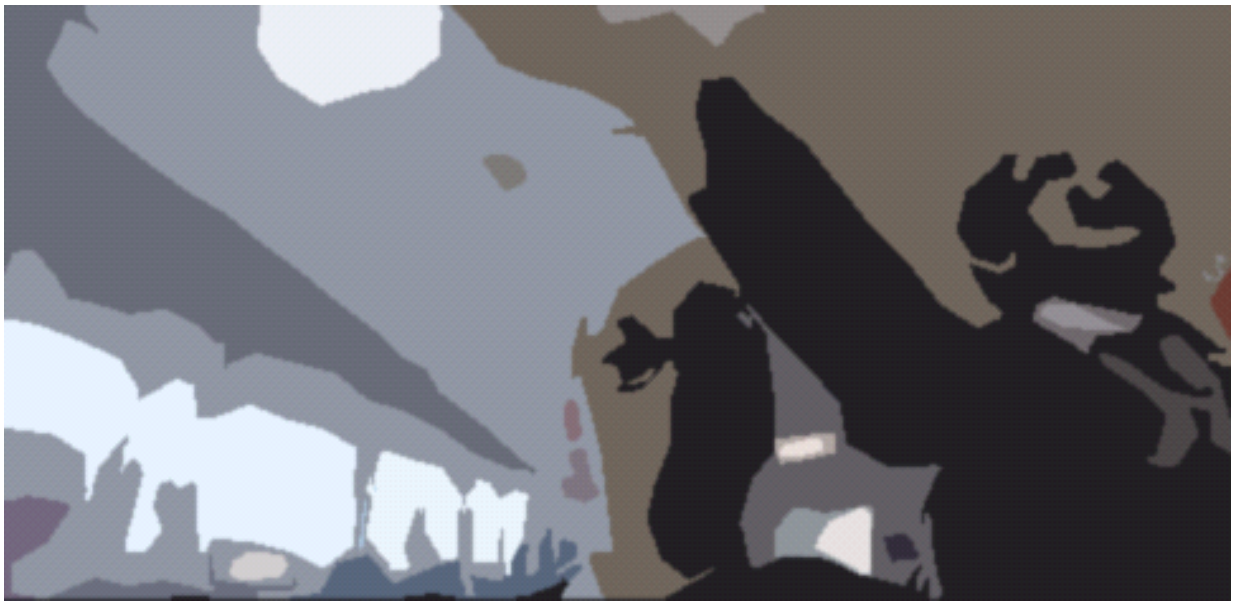

Figure 7 - Still frame from roaming camera video, experiments with pixels (2) (girl – tongue – camera assemblage)

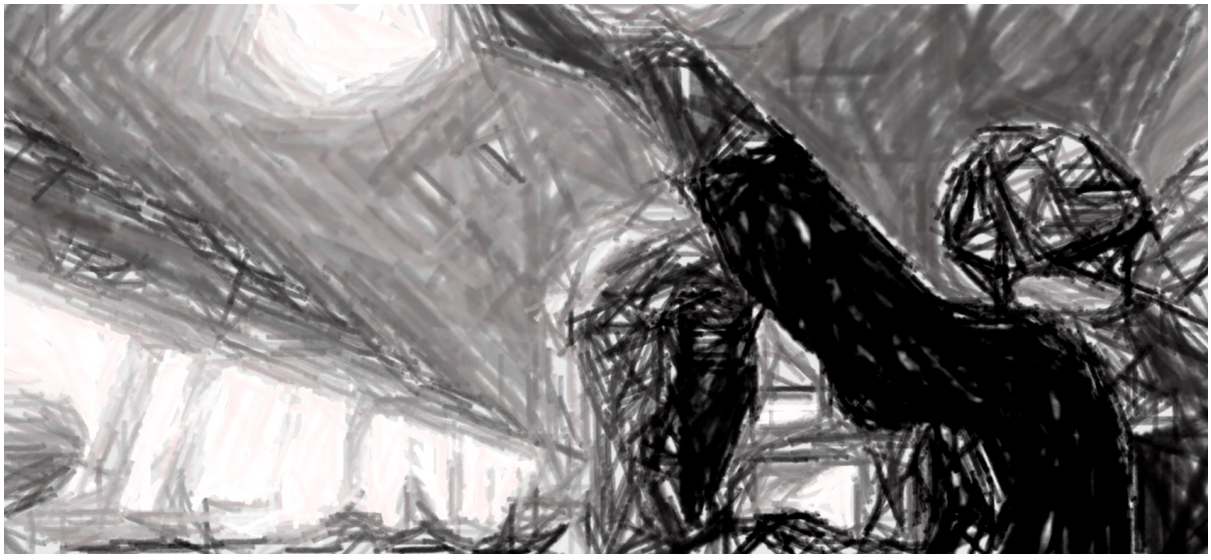

Figure 8 - Still frame from roaming camera video, experiments with pixels (3) (girl – tongue – camera assemblage)

I present images 6, 7 and 8 (above) as an alternative way of 'sensing' Rebecca, to extend beyond normative ideas and move into the not-yet-known and ask what these pixelated experiments do and/or open up. I manipulate the digital pixels in the source image as a passage to incite a haptic eye and make perceptible those other hidden performative entities that produce the phenomena at hand. As outlined earlier, I draw on Marks' discussion of 'haptic visuality'. Marks suggests;

> The haptic image works by bringing vision close to the body and into contact with other senses and perceptions. By making vision multisensory (…) refusing to make (…) images accessible to vision, so that the viewer must resort to other senses, such as touch, in order to perceive the image. (2000:162)

Haptic vision differs from conventional optical vision that we often use to recognise objects, children and their surroundings within educational video data. For example, in the source image (5) we see the children in school uniform, surrounded by tables, chairs, computers, a white board, and school work is displayed on the walls. Our optic vision operates at a distance and allows us to perceive objects in space, privileging the 'representational power of the image' (Marks, 2000:163). Alternatively, haptic vision incited through the digital experiments with the pixels (figures 6, 7, 8) coerce our gaze to move over the 'surface of the screen', appealing to tactile connections. Marks explains that the eyes function like 'organs of touch', whereby the physical objects are given up and instead 'resolve into figuration gradually (…) privileging the material presence of the image' (Marks, 2000:163).

For example, the pixelated experiments draw on colour, shadows, objects and bodies within the source image that help us to perceive an alternative route to sensing Rebecca's other entanglements with matter in computer club. Yet, haptic vision also works beyond perceptions as de Freitas & Palmer (2016:1216) explain that forces of touch link up 'materially in ways that cannot be perceived'. In this sense, the digital capacity of the audio and visual software operates in strange and intriguing ways, where the mathematical algorithms instantly communicate with the source image (5) to territorialise such disparate milieus and make functional new aesthetic qualities within images 6, 7 and 8. The experimental images (figures 6, 7, 8) may be thought of as territories that are 'recoded' with new functions and qualities, which are expressive in their nature, also known as a '*refrain*' (Deleuze and Guattari, 2014).

The '*territorial refrain'* (figures 6, 7, 8) disrupts 'normativity' and opens a passage to consider how we 'are plugged into the force field rather than being detached observers' (de Freitas and Palmer, 2016:1219). The child figure in images 6, 7, 8 becomes indiscernible and this shift recognises matter and meaning beyond those initial perceptions incited by the source image, and this new mode of engagement also has the potentiality to change both the child and the audience in the process.

We may think about the image of Rebecca as an enactment and not a description (Murris, 2016) that is constituted of many different flows and intensities, questions, discourses and theories that come together. A '*line of flight'* (Deleuze and Guattari, 2014) emerges and a change occurs, as I resist the urge to 'analyse' the experimental image through normative understandings, where 'the eye is no longer the usual optic device, looking for resemblance, looking for the line, but becomes haptic' (de Freitas, 2015:328). I resist the urge to be critical and frame the content.

Instead, the experiments with the digital pixels work to produce questions based on what bodies might be able to do in a new configuration of matter and meaning. For example, we may perceive the initial source image of Rebecca (figure 5) in its current bourgeois normative form as the solution to certain problems or questions, how the school girl performs her subject, manages her desires and behaviours in the context of a school-based scenario. To consider what the new 'territories' (figures 6, 7, 8) offer in knowing an alternative reality of computer club, I draw on Colebrook, who suggests they help to 're-compose the problems that orient the self, counter-actualizing the present by drawing on the pure past of the questions from which we have emerged' (2014b:249). In this sense, I consider how the child, GoPro camera, and researcher are mutually 'imbricated with the becoming of the concept' (de Freitas & Palmer, 2016:1218), which moves beyond perpetuating the familiar with those questions that already contain the answer (Deleuze and Guattari, 2014). Installing into a haptic vision of the world is one technique to trace the overlap of concept and method that activates the differential and 'holds difference in lively suspension' (Manning and Massumi, 2015:3).

Tracing the performative relations of a child-camera assemblage

To create the pixelated images (6, 7, 8), I experimented with Microsoft PowerPoint digital software, widely accessible and used to present text and pictorial-based

information. The aim of the experiment was to incite a 'haptic eye', as previously explained (de Freitas, 2015; Marks, 2000), over the 'optical' and make visible those hidden performative elements that blurred all sense of boundary between the child and their surroundings in school. I focussed on the potential of colour and light as performative entities within the source image (5) and, in this sense, my experience became 'the experience' and that experience allowed me to sense the affective impact of the video filmed by the children and what this opened up to. In foregrounding colour, Colebrook (2014b) explains

> colour, occurs as relation between waves of light and an organism's eye, but the eye, in turn, occurs as the relation between organic living matter, milieus of light, and evolutionary tendencies towards formation. (2014b:244)

Deleuze and Guattari (2014:404) explain 'colour clings more, not necessarily to the object, but to territoriality'. I suggest that the source image (5) is the product of 'deterritorialisation', created through those encounters between the child and camera as they pass into new assemblages and 'borrow' from their surroundings. I manipulate the colours present in the source image (5) through experiments with the pixels. The digital capacity of the visual software enables colour extraction and manipulation and the process incites various other imaginings, creating new sensory and aesthetic territories (figures 6, 7, 8). Therefore, the source colour is steered by other components, for example, digital software and mathematical algorithms, along with my own (researcher) desires and intentions to change the aesthetic appearance of the image. The assemblage is in full thrall as it operates across both its vertical and horizontal axes. As discussed in earlier chapters, the horizontal axis is a '*machinic assemblage',* where the content of bodies, gestures, actions, work in relation with the '*collective assemblage of enunciation'* concerned with expression, tacit and incorporeal acts and transformations. The vertical line associates itself with the relationships between territorialisation and deterritorialisation, a force of movement that operates along the '*molar line'* (the status quo) that is disrupted through moments of '*deterritorialisation'* or '*lines of flight'* (disruption to the status quo).

The colour occurs as a by-product of changing relations between human and non-human, resonating differences as 'the milieu (both human and digital) slide in relation

to one another, over one another' (Deleuze and Guattari, 2014:364). Colebrook (2014b) suggests we must think intensities beyond the human and this is a 'queer politics' (2014b:250) that does not reject recognition of self or a refusal of normativity, but involves an 'affirmation of the pre-personal' (2014b:250). This means that rather than assessing the images according to their meaning or their relations that render certain affects and desires, I attempt to reconstitute the video 'data' through a child-camera assemblage in accordance with 'a virtual series, all the encounters that are potential or not yet actualized' (2014b:251).

What the video 'data' offers in knowing children differently

The video stills presented above (figures 6, 7, 8) express a more haptic vision of the world, through new types of 'territorialisation' (Deleuze and Guattari, 2014), as discussed, where colours, objects, bodies, forces, intensities, sounds and the GoPro camera, link up in ways that cannot be perceived within the source image (5). For example, I draw attention to the bright, square celling light we see in the source image (5), that morphs into various sun like objects, within figures 6, 7, 8, created through the coming together of those resonating and disparate forces (of pixels, light, bodies, colour, camera). The polystyrene roof tiles on the classroom celling (5) transform into colourful variations of surrounding skyscapes (6, 7, 8). The spectator is instantly transported to an outside scene of alternative imaginings. The light from the window shines through to the classroom and creates shadows of different variations on objects and bodies. In this sense, 'the distribution and diffraction of light also choreographs the children's bodies' (de Freitas & Palmer, 2016:1216). Light as energy cannot be eradicated but can be transformed through its coming together with the pixel in these experimental images. The light makes the bodies and objects come alive through its re-configuration with digital matter, opening up other potentialities for the eye to perceive and for new bodily configurations to take shape.

Rebecca becomes almost indiscernible in figure 8, her tongue is unrecognisable. The shadow of a limb outstretched above seems to float, as bodies, desires and materials all partake through the forces of the 'child-camera' assemblage. I wonder what the image does in knowing the child through new reconfigurations of a body that is free from those wider associations and discourses pertaining to the girl's tongue. The potential of the pixels allows us to engage with a new set of sensations, which are utile

in dissolving the ‘conventional’ child in such a school-based scenario. This provides the child with the power to escape from those normative representations that are often perpetuated within educational video research practices. For example, images 6, 7, 8 operate to re-position the child as ‘other’ (Murris, 2016) in new acts of mind and body. Such visual experiments are useful in recognising how ‘normativity’ positions certain bodies and minds over others, and is helpful in destabilising socially constructed perceptions of ‘life’ and ‘being’. For example, the child (in such images) might to be encouraged to see themselves in multiple assemblages that create and perform a body that is always in motion that is never final ‘but engages in exploring new and other possibilities of what a body-assemblage can do’ (Lenz Taguchi et al., 2016:710), what a child can do and become.

Re-imagining the ‘girl-tongue-camera’ assemblage

Deleuze and Guattari (2014) explain that the focus within any assemblage is not on specific functionalities of the single components, for example, in the source image (5) we see girl, tongue, school uniform, windows, arm, polystyrene celling etc. It is too easy to attach associated discourses and values to all of the objects we see and the image becomes representative as previously discussed. Instead, experiments with the pixels help us consider what other potentials and associations are incited through the arrangement of those singular non-human entities that come together. As I discussed, we are not able to know the specifics of the girl pulling her tongue out; this would mean ‘asking what the image means. Instead, I ask what the image does. What potentialities and relations are incited through her mutual coming together with other entities?

As discussed, milieu is a concept associated with the language of assemblage. Milieu can be thought of as surrounding, non-directional, activities and spaces that are the ‘soup’ (Jackson, 2016) of life and being, their ‘ongoing movement creates territories’ (Jackson, 2016:186). The pixels work as components within the milieu of surrounding digital technologies that act in a mutual coming together with the territory of girl-tongue-camera. The girl-tongue-camera assemblage ‘bites into’ (Deleuze and Guattari, 2014:366) its surrounding milieu and, through this act, creates a temporary holding place that ‘opens the field of experience to the more-than of objects or subjects preformed’ (Manning and Massumi, 2015:3).

Naming all the components of the surrounding coded milieu would be futile, instead, 'the work comes in analysing the temporary functions of their relations' (Jackson, 2016:186) as they move in, through and alongside each other. Within the source image (5), the girl's tongue initially drew my attention and became the most bodily powerful element. Through experiments with the pixels, my researcher 'gaze' was forced to attune to a more haptic vision of the phenomena at hand in images 6, 7, 8. In so far as my researcher 'gaze' becomes haptic, attuning to the colour, texture and shades that are prominent and that work to reconfigure the image of the child in new and intriguing ways. I focus attention on how the girl's tongue becomes indiscernible and the black, white and colour pixels of images 6, 7, 8 dominate the space and erase all sense of human emotions and features from the content of the source image. The figure of the girl is decentred amongst a digital array of colours and shades of light, a 'line of flight' (Deleuze and Guattari, 2014) takes shape as I begin to wonder what we lose if we lose the power of representation, more specifically, the tongue, to disrupt conventional notions of 'good' and 'bad' behaviour. The intensity of the image continues to work in mysterious and intriguing ways to disrupt normative thoughts and create an indiscernibility between my 'relationship to the image and the knowledge it implies' (Marks, 2000:177).

The image of the tongue and the wider socio-cultural rhetoric in relation to gesturing with the tongue are deterred amongst a new set of relations. We are no longer able to draw on familiar associations, as the girl's tongue is made unremarkable and insignificant amongst an array of other performative bodies of light, shade, texture, colours and digital pixels. What we see now in the experimental images is the potential for the child to be part of a body, an assemblage that does not consist of organised and functional parts or forces (Colebrook, 2014:23). Rather, this is a territorial assemblage that creates and performs a body that is always in motion that is never final 'but engages in exploring new and other possibilities of what a body-assemblage can do' (Lenz Taguchi et al., 2016:710).

Experiments with the pixels might be thought of as having the power to evoke and release pre-personal affects, sensations and concepts of various forms of sense production (Colebrook, 2014). Such digital manipulation of video can transform, for example, the girl's perceptions of what her body can become and what her body can do (Lenz Taguchi, Palmer, Gustafsson, 2016), as well as researchers and

practitioners' ways of understanding children. In the source image (5), as previously discussed, the girl is pulling her tongue out. This gesture may be viewed as cheeky, disrespectful or even uncontrolled. However, by digitally manipulating the image, other performative elements are foregrounded and we are offered an alternative way of knowing the child as 'artistic, ingenious, harmonious and joyful (…) as part of a larger body-assemblage' (Lenz Taguchi et al., 2016:712). Yet, my analysis also extends beyond simply labelling the child figure in new and alternate ways, as it attempts to undo those very humanistic notions of joy, harmony, surprise and cheekiness that free the child from those pre-fixed categorisations. I have suggested, using fragments of video 'data' taken from the GoPro camera, that a haptic vision is one route to knowing what a body can become and do beyond initial perception and categorisation. The reconstitution and decentring of child subject is utile in considering the child in an alternative manner, rather than as a docile, complicit and institutionalised subject. Instead, I hope my experiments have moved towards disrupting ways of knowing about children that have been contained within the contours of human-centric terminologies and practices of knowing. I wonder what else might be known if we attune to video 'data' through new modes of engagement that suspends the requirement to be critical, listening instead to how 'conditions for expression make it singularly what it is, allowing the video to open itself up to its own creative impulse' (Manning and Massumi, 2015:4).

Animating multiple realities of the classroom: Exploring child-camera-video assemblages

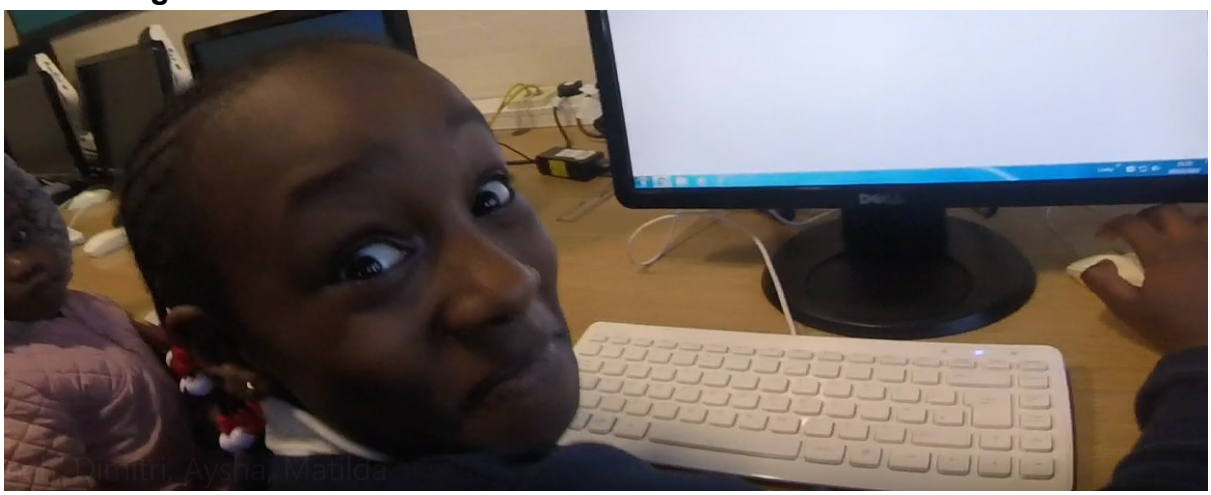

Figure 9 - Roaming camera still frame (girl-keyboard-camera assemblage)

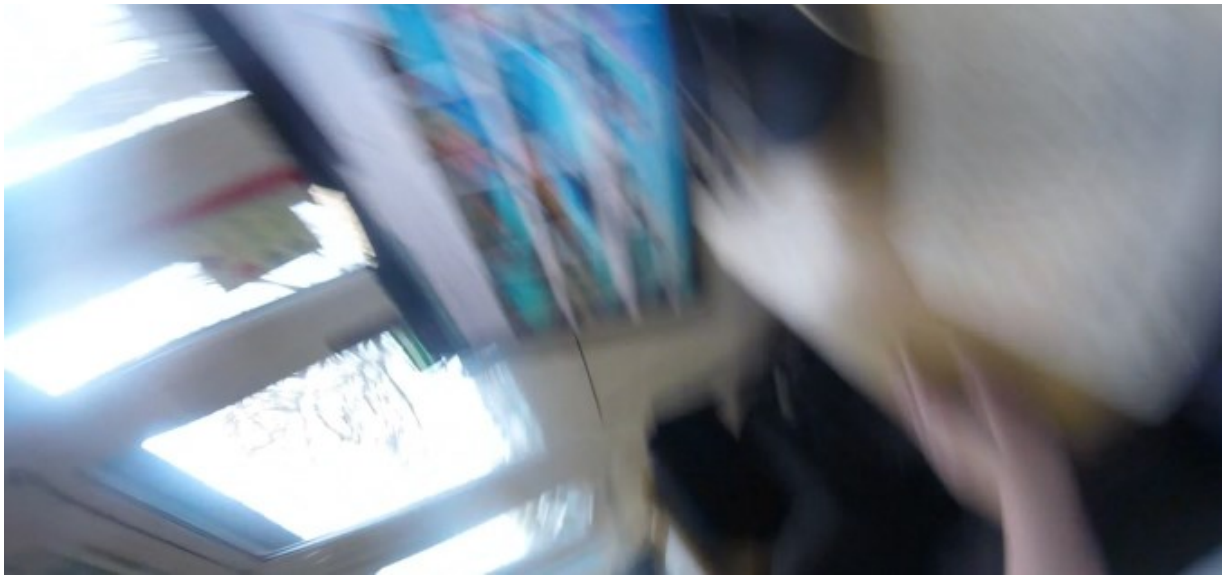

Figure 10 - Roaming camera blurred still frame (window-keyboard-camera-PC monitor assemblage)

Figure 11 - Roaming camera still frame (boy-camera-roof tiles assemblage)

My discussions so far have indicated that the children are one of the primary forces in the initiations and consequences of the video 'data' produced, however, the question of how force is mutually distributed amongst human and non-human entities still remains unclear. The child may seem to exercise their desires and intentions by occupying the camera lens with their various gesticulations and sounds, yet, the children could be equally understood as 'occupied' and animated by the camera lens.

In response, I draw on images 9, 10, 11, and pay close attention to the idea of force that flows between various human and non-human bodies. The rhythmic repetition of

facial expressions, laughter, body postures, movements, and words can all be activated in the ad hoc work of an 'assemblage' (Deleuze and Guattari, 2014). However, they are all very human-centric characteristics and, as such, I wonder how the forces created by the material and digital capacities of the GoPro and those wider environmental forces (light, colour, sound etc.) are equally implicated within the potential of such events as they unfold. In the coming section, I explore how the concept of '*refrain*' (Deleuze and Guattari, 2014) is useful in sensing how disparate forces (human and non-human) work together to produce a new aesthetic act. I theorise an alternative way of engaging with the video 'data' through the technique of '*turning over'* the video 'data' that helps to consider the child figure beyond the 'social' within educational video research.

A technique for future video-based inquiry: 'turning over' video 'data'

I draw on the story of the brown stagemaker bird, discussed in Deleuze and Guattari's (1987/2014) book '*A Thousand Plateaus'*. I focus on the aesthetic and functional qualities produced as the bird turns the leaves in a specific way on the forest floor to attract a mate. I use this narrative not in a metaphorical sense, but quite literally to determine how the child, technology, researcher and environment operate together to produce a similar aesthetic act and produce something new by 'borrow(ing) from' (Deleuze and Guattari, 2014:366) the surroundings to turn matter into an expressive quality. As previously discussed, I use the notion of 'territorial assemblage' in relation to the child and camera, not to depict an ethological 'aggressiveness' that pertains to certain species and their territories, but in line with Deleuze and Guattari's (2014) reconfiguration of territory as an aesthetic act, which is not only the 'privilege of human beings' (Deleuze and Guattari, 2014:368).

Deleuze and Guattari (2014) explain how the male stagemaker bird draws from its environment each morning, by arranging leaves from the surrounding trees to attract a mate. The bird does this by turning the leaves upside down so that the paler underside stands out against the dirt, the process of 'inversion produces a matter of expression' (Deleuze and Guattari, 2014:367). I draw from the narrative of the stagemaker bird to theorise the child and camera dalliances around the space of computer club operating in a similar open-ended, artistic manner, as they turn materials, bodies and language over to illuminate an expressive quality. For example,

the children and the camera draw from the surrounding milieu of objects, bodies, lights and materials to showcase multiple animations, make connections and produce something new in the process. I present fragments of video footage (9, 10, 11) that are a product of a (human, non-human, digital) arrangement that becomes functional and opens the assemblage up to external relations.

Let me return to the stagemaker bird. He displays the leaves and this arrangement stands out against the mud to attract other birds; there is a mutual flow of forces working between bodies, matter and materials within this assemblage. I suggest that, in a similar manner, human intent, desire and will function in correspondence with the digital and material capacities of the GoPro camera. As such, the human and non-human components mutually produce the phenomena at hand. For example, the camera would not operate without the dexterity, will and desires of the child, and the child would not respond in the same manner without the material conditions offered by the GoPro camera. A focus on the GoPro camera's material and digital capacities becomes the central concern here; the camera is not used to represent or form the children's identities, but to work constitutively to produce the fragments of video stills at hand. The GoPro camera, in this sense, operates to capture 'pure intensities in matter, allowing matter to stand alone and be liberated from its habitual and human series of recognition' (Colebrook, 2014b:250). The sensations incited through the qualities of images (9, 10, 11) are not those of the lived subject alone but are powers of perception beyond the self that provide us with 'a new distinct model of reading' (Colebrook, 2014b:250). The still images work through their aesthetic qualities, much akin to the stagemaker bird, turning over the leaves on the forest floor. In a similar artistic process, I 'turn over' fragments of video 'data' to provide matter with an expressive quality and to make connections and create something new in the process. As a visual researcher, I am imbricated and become a component within the system as a whole (child-camera-image-researcher). The technique of '*turning over'* the video data assumes a special function in understanding the video content beyond human privilege alone. The process builds on MacLure's (2010) notion of data that 'glows'; to offer fragments that reanimate experiences, resonating in my body and consciousness. Yet, the technique of 'turning over' the video data provides a more substantial theorisation of what it means to be produced by the 'data' through ongoing participation and engagement.

Deleuze and Guattari explain the importance of attuning to life from the middle, 'let someone attempt to seize a blade of grass and hold fast to it when it begins to grow only from the middle (…) you will see that everything changes' (2014:24). This means not attending to matter in a divisive manner or dwelling on accepted meaning, but attuning 'more carefully to the materiality of (my) responses' (de Freitas and Palmer, 2016:1208) as I approach the 'data' through an unorthodox manner. Therefore, the video phenomena is not determined by human intention alone but in and through wider social-discursive-material encounters. In this sense, I also wonder how my micro-perceptions may be interlocked with the materiality of the camera and the resultant video 'data'.

Concluding remarks

The chapter draws on Gilles Deleuze, Felix Guattari and the language of assemblage to theorise the video footage and think beyond the child as a 'social' entity. I argue the need to further theorise the visual ontologies that underpin the choices and production involved in video-based research with children. What I have emphasised in my experiments with the video stills is the usefulness of philosophies as conceptual tools that enable us to say something more about children's lives and, in doing so, give young people a somewhat more 'powerful' position within education video research but from a decentred standpoint.

I presented several video stills and suggested viewing the action through unexpected angles and allowing the video footage to work in an ad hoc manner that served to 'push' against traditional representative ontologies. I foregrounded the entwining of bodies with other entities such as materials and colours that dominated the source images. In my analysis, I emphasised the usefulness of 'territorial assemblages' in relation to various child and camera encounters and what this conceptual language might offer in sensing the video footage differently. I suggested that 'territorial assemblage' unfolds in the nature of the interactions between children, camera, researcher and surrounding space. These unfolding, fleeting moments are often-overlooked aspects of classroom interactions that may offer a way of repositioning both child and spectator of the video within the action. In conceptualising the GoPro

camera and resultant video footage I have offered an opening up of potential for different understandings of how learning emerges out of the movements and rhythms of bodies, formlessness and chaos within such classroom interactions.

Chapter 6:

Becoming Researcher: Experimenting with Deleuzian theory as practice in video based inquiry

Throughout the previous chapter, I discussed child, camera and researcher relations using the conceptual language of 'assemblage'. I suggested, the coming together of such relations maintained a twofold continuous shift through the work of interior milieu (impulses and drives) and exterior milieu (circumstances and environmental factors) that acted as 'rhizomes' (Deleuze & Guattari, 2014) to maintain open-ended systems and events. Drawing on relational concepts brought about a (re)telling of a different kind, as I intertwined Deleuze and Guattari's (2014) concept of 'refrain' to animate thought and insight a new mode of engagement with the source footage. I experimented with the digital pixels as a way to capture the complexity and chaos of the many fleeting moments within the source footage that far extended beyond the eye. What I emphasised in my experiments with the footage was the potential in theorising the digital pixels as a route to multiple animations and different understandings of the children and their environment. For example, how learning emerged out of movements and rhythms of bodies, formlessness and chaos within such classroom-based scenarios.

Introduction

In coming section, the video footage recorded on the chest-mounted and the roaming GoPro camera become the central concern. I make visible the children's understandings of participatory education video research that is outside normative views of education video research focussing on the what and the how. I pay attention to the children's doing (of) filming – how they perform filming and make the filming work for their socio-material encounters through the wearing and carrying of a GoPro

camera. I offer a short vignette from my field notes detailing the formative months of the study during which the children familiarised with the chest-mounted camera.

> *The GoPro camera was attached to a harness, comprising of interconnected, elasticated, straps that adjusted to fit the children's individual shape and size. The children soon became adept at exchanging and fastening the harness to their upper bodies, albeit intermittently, for 10 – 20 minutes each before they requested to be alleviated of their responsibilities. Filming with the harness discontinued after a few months, due to the children's lack of interest and today was no exception. I noticed the harness seemed restrictive and uncomfortable, and the children confirmed this. I sensed their avoidance at times and the process began to hinder our relationship. Their wellbeing was a concern and so I did not want to manipulate or cajole the children into wearing it. Towards the final fifteen minutes of the session the children started to use the Go Pro camera as a 'roaming device' that was freely passed around in an improvisatory manner and the atmosphere changed.* (Caton field notes, March 2017)

Evident in the field note (above) was the curtailed use of the harness device and how filming became a nuisance for the children. I suggest that the children's interest became lacklustre due to a limited control and awareness of what was actually being filmed from the chest position. I discuss the implications of filming from the chest perspective in more detail later in the chapter. Furthermore, I unpack the significance of the absence of a view finder and the associated material-discursive forces of the GoPro camera that impacted the child and camera assemblage. The children were aged between 7 and 11 years old and had a definite sense of their participatory and ongoing role in the research. At the start of the inquiry the children were excited at the prospect of filming with the device as they freely passed the chest harness between themselves. I noticed once they were strapped into the harness and filming had resumed their bodies became over animated or more docile. Either way, what was apparent was the immediate embodied and visceral response to the wearing of the device. My field notes highlighted a definite change in the children's posture and behaviour and those behaviours varied in nature dependent upon the individual. For

some the harness meant more freedom of movement around the space of the room, for others it coerced little movement and introversion. I also noticed outbursts of dancing and singing, albeit momentarily; the material nature of the device was working on the children in unexpected and intriguing ways. There was a definite heightened sense of responsibility in the children's performance of the research whilst wearing the camera and for some it was a rendering encounter. As noted, the children frequently highlighted the containing nature of the elasticated device and often enquired about other methods of filming in a polite and sincere manner. As such, filming with the chest-mounted camera soon became obsolete as the children's welfare was paramount. However, although filming had ceased with the chest-mounted camera, I continued to watch the video with a certain intrigue, yet uneasiness, knowing the children felt a certain way about the filming process at this particular time.

Traversing two ontological orientations: Bracketing in/out the children's emotions & behaviours

The reflections above draw on those specific details associated with the children's behaviours as they came to familiarise with the camera equipment and their participatory role in the filming. It has been hard to bracket out the excitement and nuanced behaviours of the children whilst attempting to detail events through a decentred, human viewpoint. However, I do so, as an important technique not to frame events but to mobilise how going to the absolute limits of two ontologies of being and becoming must remain heterogeneous for their collective potential to be felt (Manning and Massumi, 2015:3). For example, grappling with both human-centred and decentred abstractions helped me to account for the micro politics that emerged within the wider child and camera assemblage, creating problems that had 'no home or reference' (Manning and Massumi, 2015:4), making me wonder what might become.

What might become: Re-telling events through a speculative mode thinking

In discussing the child and their behaviours, I am aware that my accounts are contained within human-centricities. I wonder what might be told, if I attempt to synthesise the event through a speculative theoretical lens (Manning, 2016; Springgay and Truman, 2017) where the human becomes a focus amongst many other competing and affective forces and entities in an open-ended assemblage. In this

sense, I also draw on ‘nomadic thought’ (Deleuze and Guattari, 2014) that recognises ‘a radically immanent intensive body as an assemblage of forces, intensities and passions that solidify in space’ (Braidotti, 2006:201).

In the coming short section, I dedicate a space to experimentation and attempt to re-tell events where a body is an assemblage of forces. I attempt to bracket out the children’s emotions and behaviours to illuminate those other forces, intensities and problems that emerge within the open-ended ‘assemblage’ of bodies (human and otherwise).

Figure 12,- Chest-mounted camera, still frame (Spider model-hand-researcher assemblage)

Figure 13 - Chest-mounted camera, still frame (Hands-Wires-Shoebox assemblage)

The chest-mounted camera was restrictive yet its technical capabilities opened up the opportunity to record from a unique perspective on the body. Human bodies surrendered, temporarily, giving way to the containing nature of the elasticated device that held the camera in place. The materiality of the camera harness drew attention to how bodies (human and otherwise) moved in unique manners to co-exist and function as a collaborative force. Encounters became a mutual dalliance of materials, flesh, desires, forces, bodies and technology that worked together to mobilise concept in the making through the immediate techniques used (Springgay and Truman, 2017). Speculative concepts were activators and not organisers (Manning, 2016) to illuminate child and camera unfolding encounters.

For example, the over closeness of the materials in frame (figures 12, 13) produced by the chest-mounted camera ensured that human bodies became less significant, provoking a new way of attuning to the video. Bodies (human) gave way and became entwined within the flows and materials that shared the space. Disparate forces did not emanate from one source but moved in/though the spaces between bodies, materials and the camera each contributed to the frame of action in their coming togetherness. What types of bonds can be established and sustained when we place a special emphasis on the relations to other forces and entities? I suggest the still frames (12, 13) foreground those other objects - wires, batteries, textures, plastics, colours, hands, table tops - all jostling in an assemblage of forces, intensities and desires. The human might be described as emergent through a chain of connections ‘an ecological, embodied subject of multiple belongings’ (Braidotti, 2006:202). The process of transformation of the subject continues and I explore how the still images offer a space to recognise the unity and the interdependence of humans in such school-based scenarios. What matters and is made to matter in such events becomes clearer or, at best, easier to sense.

I began to dig beneath the surface of what appears to be stability and ordinariness within the still frames produced by the chest-mounted camera. The images produce a space of rupture and resistance in a highly embodied and visceral encounter with the harness and the material objects in view. In asking the young boy to wear the

camera harness around his body like a coat, I witnessed the harness affecting his subjectivity and troubling the ways he has learnt to understand his own discursive self within the familiar classroom setting. Therefore, the camera harness operated with affective force around the child and I wonder whether the boy had chosen to wear the device because he figured he should do or did the harness produce this in and with him?

The method of filming with the GoPro was not used to extract a sense of what already existed in the classroom or the young children's personal experiences of place. Instead, the filming process was about 'activating problems and concepts, new knowledge and new practices of relating' (Springgay & Truman, 2017:5). The video footage created on the chest-mounted camera undulated and animated assemblages of human and nonhuman encounters but did not represent the classroom; it incited modes of thought and 'different practices of relating' (Springgay & Truman, 2017:6). As a method, the GoPro camera sets the event of 'thinking-making-doing' into motion and I am provoked to think in practice and in conversation with the footage generated. Therefore, the GoPro camera and resultant video become an effective way to pose problems and consider methods that are generative of movement, force and speculative practices.

For example, the complex relations of matter and meaning that are made perceivable through the physical position of the camera attached to the child's upper body approximately 4 feet in height, create a material-body-camera assemblage with the world that is not often associated with classroom-based video. Through this formation of bodies and materials, it becomes clear that tables, chairs, equipment and adult bodies served as obstructions as well as aids and supports. We are offered an unfamiliar view of the classroom from the child's height perspective which, I suggest, creates a 'line of flight' that takes shape as 'an event of becoming escapes or detaches from its original territory' (Colebrook, 2000:59).

In this sense, the harness seemed to have a force of its own and certainly interacted with bodies to produce child subjects who were affected in both their confidence and behaviours. I am prompted to think more about the harness working within a wider assemblage of forces and desires that stimulated the children's under and over lively

movement whilst wearing the device and I draw out some of these ideas in the coming section.

The camera harness: a route to understanding performative-material-discursive practices

The intention in the coming section is to draw on the chest-mounted footage and to think further about the wearing of the body-harness and the children's various embodied and visceral responses to this particular experience. As discussed, I recognised the harness working within a wider assemblage of forces and desires that stimulated the children's under and over lively movement whilst wearing the device. I wondered why this might have been the case and, furthermore, what the specific relations were between the camera harness, the children's movements, desires and the impacts within the wider assemblage of bodies (human and otherwise).

The chest-mounted camera was worn intermittently by the children over a relatively short period of time (3 months approximately). When the children did wear the device, I noticed them struggling to fit the elasticated straps around their upper bodies. Of course, I offered to assist on many occasions but the relationship between the children and I seemed to flounder under the tension and strain of our mutual dealings with the device. The awkwardness was usually laughed off as our dalliances with the camera equipment were kept 'light hearted'. Yet, the material nature of the device was already working and changing our human intentions, interactions, imaginings and desires within the ever-widening assemblage of relations. I suggest that such deliberations with the chest-mounted device were not presupposed but operated through our lived encounters that worked immediately, opening the assemblage up along lines of 'deterritorialisation' (Deleuze and Guattari, 2014). I attempt to articulate the implications in recognising those other socio-material forces operating in co-existence with human intentionality.

The performative-material-discursive forces of a GoPro camera

I draw on the GoPro camera's physical functionalities that operated in co-existence with the children's desires and embodied responses to filming events. I suggest the absence of a viewfinder functioned as a powerful material-discursive force within the wider assemblage of bodies (human and otherwise). At this juncture, I believe it

pertinent to detail the wider socio-cultural uses for a GoPro camera. The GoPro camera has become synonymous with its use across the extreme sports market, for example, riders are able to keep their hands free by using a head or chest-mounted camera harness to film their experiences skiing, riding, sky diving, horse riding and motor racing. Due to the dangerous nature of these sports, there is limited need for a traditional view finder and this unique quality of the camera has become a prominent feature and useful in such extreme and diverse situations.

I chose to use the GoPro camera in the classroom for its practical functions and due to its robust, waterproof outer casing. I found the camera to be extremely light weight and the operational functions were intuitive and relatively straight forward. The display screen offered a choice between camera or photograph mode, which operated via a simple start and stop button located on the exterior of the case. Prior to the research, I hadn't accounted for the implication of a lack of a view finder and how this might have operated as an unfolding, affective force within the child and camera assemblage. However, I believe this is significant and worth saying something more about.

The absence of a viewfinder on the GoPro camera opened up the opportunity to film from unique angles in co-existence with the child's body. The material nature of the device operated as a powerful force in such moments, opening up alternative and nuanced perspectives of the action. The chest-mounted footage opened up the potential to recognise the micro political behaviours that emerged between bodies, materials, discursive practices and those wider forces within the assemblage. For example, I recognised the absence of an optical viewfinder contributed to the children's reduced sense of 'mastery' over the filming process and the prevailing realisation they had surrendered their agency over to the camera left them frustrated at times. Furthermore, the material nature of the camera and the subsequent impacts on the children's behaviour, I suggest, could not have been pre-determined. The micro political behaviours were discrete and emerged imminently out of the unfolding encounters and I had to remain attuned to unfolding techniques and problems. I responded to such phenomena and recognised my history, knowledge and presuppositions were entangled in the process of identifying what came to matter. For example, the children felt they were not able to assert their optical regime and creative desires whilst simultaneously strapped into the camera harness. The children made

me aware of this and I questioned them on many occasions. My adult voice dominated the sound recordings within such moments. Some children recognised the chest-mounted footage as 'adult sanctioned' and they seemed to deem the research video for my use and provocations and not theirs. I recognised the implications of my history and background having significant influence over the chest-mounted filming process. For example, as hard as I tried, I couldn't depart from who I was and that rendered the 'molar line' or the status quo at times within the assemblage of wider forces. For example, the children recognised me as an adult researcher, extracting information from them using my camera equipment, field notes and questions. I wondered if the child's under and over-lively movements were the body's way of reclaiming some of these agencies back and disrupting the 'molar line' beyond language, as part of the ever widening and changing assemblage of desires and forces.

Re-animating chest-mounted camera footage through a philosophy of 'lines'

In the coming section, I take the opportunity to re-animate some of the video footage taken from the chest-mounted camera footage using Deleuze and Guattari's (2014) philosophies of 'lines'. I do so as an alternative route to knowing computer club beyond those initial perceptions. Filming from this alternative perspective offered an intriguing account between the child and their material dalliances, as I have already started to explore through a speculative positionality. I believe such video phenomena worthy of further interrogation to explore what more might be opened up. As identified in earlier chapters, the notion of 'lines' is an important conceptual tool for Deleuze and Guattari in their book *A Thousand Plateaus*. 'Individual or group', they write, 'we are composed of lines … or rather, bundles of lines'. There are lines of life, lines of writing, lines productive of variation in lines of life or writing, lines of luck and misfortune, and so on (1987:215). Deleuze and Guattari (1987) explain the 'molar line' is a line that holds in place the status quo, for example, symbolically, pragmatically, and through various forms of communication. Molar lines might also form internalised discourses (for example, what it means to carry out good/bad research practices in certain academic fields). Ways of 'doing' visual research with child participants are often constrained by 'molar lines', which tend to inhibit ways of 'seeing' and thinking outside of normative values. As an effect of normativity, educational video research has predominantly worked divisively to render various social categories of child (James et al., 1998) using hierarchical observatory techniques. For example, children are often categorised as

vulnerable, innocent, monstrous and creative and often positioned as emotionally less mature than adults. These internal beliefs are frequently grounded in human-centric notions that relinquish visual 'data' as something that transmits information (the object), often used as evidence for the researcher (the subject) for wider desires, distribution and theorisation. For example, de Freitas explains researchers are now able to use digital software 'to zoom in on hands and faces and to focus on any given moment, in order to study the micro gestures of teaching and learning' (2016:553). Such techniques help to standardise practice and the performance of a child's body in the classroom. I make links to earlier discussions in chapter four that delineated the dawn of scientific cinema, where ontologies of human movement and representation emerged, in order to standardise the efficacy and productivity of factory workers. De Freitas (2015) argues that such video techniques used to standardise the performance of children in classroom video research, mirrors the micro attention paid to workers' hand and arm movements in early scientific film that were developed to improve production within factory lines. Other 'molar lines' are those that visual researchers internalise, such as deep set beliefs regarding representation that render time (duration) as perceivable only through the functions of mechanical movement (human or otherwise) (de Freitas, 2016; Deleuze, 1986). This arborescent system delineates movement as superior to time, creating a 'molar line' that renders how we determine the unfolding of action and duration according to familiar space-time coordinates.

I join in conversations (Colebrook, 2001; Colman, 2011; de Freitas, 2015; Deleuze, 1989) to disrupt traditional notions of representation and consider the video stills as a powerful force that has the capacity to 'deterritorialise' the 'molar line' (Deleuze and Guattari, 2014). I approach the discussion in the Deleuzian sense, to show how 'human thought and life can become and transform through what is inhuman' (Colebrook, 2001:56).

Figure 14 - Chest-mounted camera, still frame (Hand-wires-school bag-table assemblage)

Figure 15 - Chest-mounted camera, still frame (Hand- battery- blue light assemblage)

I present two fragments of video 'data' (figures 14, 15) recorded on the chest mounted camera. I do so as an experiment to carve out a space between the 'molar line' (status quo) in '*making sense'* of the content according to normative values, yet also to consider the phenomena as an aesthetic act, an act that is incited by a child-camera assemblage, where 'lines of flight' are generative of new possibilities. I put into practice the technique of '*video data sensing',* as discussed in chapter 5*,* to mobilise concept and to open the content up to potential beyond the representational power of the image (Marks, 2000). I draw synergies with 'molar' concepts and researcher's desires to

make sense of the visual 'data' through an optical vision. Instead, I offer the fragments of video footage as provocations to 'slow' (Rautio, 2017) the 'spectating' process down and recognise a new set of sensations that unfold through alternative modes of engagement. An alternative way of knowing the content is to ask what it does, how it provokes our other senses, rather than what it means. As discussed above, this is a practice of leaving the 'territory' or the 'molar line' in order to experiment and reach beyond those initial, human-centric perceptions.

Leaving the child and camera territory – along a 'line of flight'

The new entanglement with the GoPro camera positioned on the child's upper torso forces an active rather than a passive encounter, as we are coerced into suspending our gaze for that second longer to make sense of a new aesthetic on screen. The question becomes, what does the chest-mounted film offer in making visible the children's understandings of participatory education video that reach beyond traditional educational video focussing on the what and the how? I pay attention to the children's doing (of) filming, how the child and camera perform filming and what the video 'data' offers in saying something more about re-configurations of child subject within the action.

The images above (14, 15) work as break out points from the 'molar line'. We may consider how the camera positioned on the torso creates an individual, nuanced and rarely seen account in tracing a child's embodied reactions and orientations around the classroom. Fleeting reactions are made perceptible as the camera moves in correspondence with the ongoing rhythmic movements of flesh, matter and materials. As researcher, I am imbricated in the complex arrangement and dalliances of bodies and objects as we/it/they work productively within the shared space.

I suggest, the child 'subject' performs beyond a series of mechanical movements (de Freitas, 2015) to transcend a distant and optical perception that privileges the representational (Marks, 2000) power of the image. Alternatively, the child and the camera conceive of a more haptic vision of the world (Marks, 2000), where materials, textures, colours, objects and bodies operate together to create unfamiliar and disconcerting animations of computer club. Through unfamiliar frames of reference,

we are able to recognise more deeply the children's participatory role that unfolds within their nuanced behaviours and peculiar practices with the camera.

The closeness of the materials in the frame render a specific way of sensing the world between bodies and objects that may otherwise be overlooked. I suggest, the chest mounted-camera perspective opens a route to re-engaging with the 'mundane' and previously 'abandoned' moments within these exchanges. I focus on what the specific angle of the camera does over a more traditional perspective and begin to notice how the children manoeuvre their small bodies around the classroom space whilst wearing the device. I am forced to recognise certain moments and encounters from my adult-centric viewpoint in the classroom as I re-attune in a new manner to the phenomena at hand. I suggest, a 'line of flight' takes shape, as I am encouraged to relate to the images in an unfamiliar manner, immediately dislodged from my place of safety and sense of relation to those familiar objects and bodies in view. There is an ongoing sense of vulnerability and tension as I attempt to make sense of the content through prefixed notions but I am deterred by the material conditions created by the camera lens. I am eager to frame events and move on, yet I am suspended in obscure moments that encourage a pause to consider a new perspective. The process of sensing the video 'data' in moments of uncertainty incites a two-fold movement in the space between meaning and potentiality, 'reality' and 'fantasy'. The importance of this technique occurs as the child and I mutually change within the assemblage of complex relations. Mazzei (2007) explains these connections as an assemblage, an entanglement, a knot of forces and intensities that operate on a plane of immanence producing a force that does not emanate from a single subject. Maclure suggests to 'surf' the intensity of the event, consider how the material world intra-acts with children, 'in order to arrive somewhere else' (2013:662). Therefore, I am not looking for meaning, rather I am searching for new potentialities in order to understand what the images do rather than what they mean.

The Roaming Camera: Video-Blogging (vlogging)

Filming with the camera in a hand-held position seemed a more familiar and comfortable task for the children and the technique inspired the creation of personal

'vlogs'[2]. I noted that once the children were free of the camera harness there seemed to be a contrast in atmosphere as the group excitedly scurried around the classroom holding the camera and filming freestyle whilst dancing, talking and improvising with nonsensical phrases delivered in an American accent that I was not familiar with. I recognised the unfamiliar articulations and free-flowing camera movements operated to achieve the signature 'DIY' documentary-style aesthetic they wanted to emulate. For example, many of the children were influenced by the popular YouTube channel 'Logan Paul's Vlogs', which has 17,000,000 subscribers worldwide (link below for example footage). I later discuss, how such popular vlogs were influential and therefore imbricated within the child and camera assemblage.

Clip 3: https://www.youtube.com/loganpaulvlogs

The coming section attempts to theorise the process of 'vlogging' as a practice that opened the child and camera assemblage up to its potential along Deleuze and Guattari's (2014) concepts of 'lines'. I explore how lines of 'deterritorialisation' and 'reterritorialisation' offer two alternative conceptual routes to break down binary thought (correct or incorrect ways of thinking) and to maintain an open system of possibilities that mobilise concepts in practice (Springgay and Truman, 2017; Manning, 2016).

So, there we were in computer club. The children had chosen to replace the chest harness with the newly coined 'roaming device' and in doing so the atmosphere had significantly changed to embrace the potential of a new mode of filming. The children were extremely aware of the different audiences who might watch their films yet wanted to contribute to something more than just an educational film trying to replicate 'truths' and 'real' life for academics and teaching practitioners to pour over. I encouraged the children to '*ignore the camera'* and '*just act naturally'* to put them at ease; I quickly realised these sentiments were futile. Indeed, the children did not want to '*act naturally'* or '*ignore the camera'*, they wished to stage the whole performance and become an alternative character in their new 'fantasy' scenario. I suggest that the

[2] A 'vlog' (or video-blog) is a blog that contains video content. Vlogs are often associated with online Do It Yourself type documentary video making and uploaded to social networking sites such as 'YouTube'

children drew on their over-informed ideas of 'vlogging' and imaginings in association with a young 'fantasy' audience. The children set out to create a vibrant animation of the classroom, and who was I to stop them as I too became caught up in the events of filming.

The approach to using the camera as a roaming device had not been planned and came about as a 'happy accident' in a moment of improvisation. I had no real idea how the children would adapt to using the GoPro camera as a hand-held device, (would they get bored and leave it running somewhere on a table? on the floor?) and I had no expectations as to what the footage would present. Despite my initial researcher anxieties, I noticed as the sessions and indeed the weeks progressed that the children familiarised themselves with the hand-held device and the camera became more and more independent of me (the researcher). The camera was less in my physical control, as it started to operate outside of my responsibility and awareness. The camera became a progressively stronger actant in its own right. Bennett refers to this type of agency as 'thing power, drawing attention to the 'efficacy of objects in excess of the human meanings, designs, or purposes they express or serve' (2010:20). Bennett points out that an actant never really acts alone, 'its efficacy or agency always depends on the collaboration, cooperation, or interactive interference of many bodies and forces' (2010:21). In this sense, the child and camera assemblage operated through heterogeneous connections and such relations helped to re-define subjectivities through temporary and changing functions. The 'major language' (Deleuze and Guattari, 2014) associated with documentary-type film operated as a powerful, discursive practice within the widening assemblage. Yet, the assemblage was 'never fully in thrall to the deep structures of language' and there was always the chance that the children would 'unmoor or uproot the constants that (held) the linguistic sign system together' (Maclure, 2016:176). For example, whilst filming with the roaming camera, the children performed out their socio-cultural understandings of YouTube, documentary-type video making, yet adapted their language and performance to suit individual animations of their classroom surroundings, as I will later explain.

It is worth recognising those other forces operating within the child and roaming camera assemblage, associated with the children's wider socio-cultural

understandings of documentary-type film and the influences of spectatorship and authorship linked with social media filming practices. Therefore, the influence of YouTube prompted the children to experiment with filming techniques and their use of language helped to produce a 'fantasy' dialogue with their imagined audience. I questioned, was this the children's intelligent and creative way of reclaiming a sense of authorship over proceedings and, in doing so, unshackling from adult objectification and researcher presuppositions caught up in the video research process? I believed the children wanted to produce their 'vlogs' to entertain a young and vibrant audience and not for the consumption and dissection of academics and teaching professionals. This had wider implications on how they performed the filming.

The children engaged in peculiar practices filming with the hand-held GoPro camera and their use of accompanying language intrigued me. As such, there is much more to be said about the practice of 'vlogging' as one route to illuminating multiple animations of the classroom. I ally the practice of vlogging and its wider discourses to the Deleuze-Guattarian 'machine' that is plugged into the assemblage, 'a machine is like a set of cutting edges that insert themselves into the (child and camera) assemblage undergoing 'deterritorialisation' that draws variations and mutations from it' (2014:388). The 'major discourse' associated with documentary-type 'DIY' film making has a machine-like effect within the assemblage, where the camera and the child are drawn into a complex relationship with matter and meaning. The wider rhetoric of 'vlogging' has a function to play within the assemblage that opens the child and camera relations to further potential.

These conversations are important as they imply the children's awareness of being filmed with a specific audience in mind. It also indicates the children's adept understanding of online social media practices and a desire to perform this knowledge out as a mode of expression. Furthermore, it is an indicator of how social media shapes children's lives but equally how the children shape what social media film-making might become. I question how the children's over-informed imaginings of 'do-it-yourself' type film making (vlogging) operated as a powerful force within the wider assemblage of materials and bodies (human and otherwise). Once again, I have found it difficult to bracket out the children's behaviours and agency within my writing

and understanding of the video footage produced. Recognising the two disparate ontological viewpoints allowed their differences to be felt, as I resided in a 'messy' conceptual space that privileged other social-material-discursive forces operating within the wider assemblage.

For example, Deleuze and Guattari (2014) explain the majority of language assumes 'a state of power and domination' and I affiliated 'do-it-yourself' documentary film making with social media platforms such as YouTube, Snapchat and Instagram to have a powerful influence that infiltrated the child and camera assemblage. The children's ideas regarding authorship and spectatorship operated as a forceful rhetoric. Deleuze and Guattari (2014) explain the distinction should not be made between the major and minor language, as minor languages do not exist in themselves, they exist in relation to the major language. For example, I watched on many occasions as the children communicated and gestured into the camera, addressing their imagined YouTube audience with popular American phrases, such as '*hi guys, how are you doing today*?', '*oh my god, I am so embarrassed right now, guys', 'come check this out dudes, this is cool'.* In a Deleuzian ontology, the children did not pre-exist the assemblage of which they were components and did not have a privileged perspective on them. Rather, the children were constituted in and through the assemblage in which they moved and which moved them. For example, a child may seem to have exercised their agency in quoting popular YouTube catch phrases, such as '*hi guys, how are you today'* and *'come and check this out dudes'*, but one could equally understand the children as 'occupied' and animated by such American, popular catch phrases.

In the coming section, I attempt to break down such discussions using Deleuze and Guattari's notion of '*order-words'* to consider how the children pushed the major language associated with YouTube-type documentary film to its limits in creating something new in the process. It was also discernible that a 'minor language' operated as a bubbling undercurrent within the ever widening assemblage. It is worth saying something more about the concept of 'minor-language' and how it operated, to open the child and camera assemblage to its potential.

Vlogging: Interrogating popular social-material-discursive filming practices

Deleuze and Guattari (2014) offer their concept of '*order-words'* to consider how language creates order and discipline to produce a 'major language'. MacLure explains;

> Order-words are disciplinary, both in the sense of commanding obedience and of creating order. They carry the implicit presuppositions that produce subjects and command social obligation in a given society and might be better translated as 'slogans', as this emphasizes their unavoidable political, pragmatic and collective force. (2016:175)

I suggest, '*order-words'* operated as a force in the child-camera assemblage that expressed the children's adept knowledge of documentary type 'DIY' film making, much like the YouTube Logan Paul vlog above (clip 3). For example, there was a clear understanding of what a 'popular' YouTube video was meant to look and sound like. The children had a clear sense of how this might be played out and achieved using the camera as a hand-held device. For example, the children used chatty phrases such as '*hi guys, how are you today'* and '*hey, this is cool, come and take a look dudes'* similar to the young teen vlogger Logan Paul. The '*order-words'* that commanded the phrases above created certain types of subjects that emphasised the children's sense of obedience and social obligation towards the popular online rhetoric. However, the popular phrases also worked as 'lines of flight' that allowed the children to push language to its limits 'whilst bodies (were) simultaneously caught up in a movement of metamorphosis of their contents (…) causing them to reach or over step the limit of their figures' (Deleuze and Guattari, 2014:126).

vimeo.com/257133026 – password **Lcatonthesis2018**

The video (above) offers researchers and practitioners rare access to the children's catch phrases and 'sound-games' (MacLure, 2016) that infiltrated much of the film. We hear the young girl repeating the phrase '*Hashtag, vlog dude*', in a high pitched and intermittent tone. The phrase becomes quite irritating after a while. However, these mundane and seemingly 'childish' moments are important to understand how children might operate at the borders of language and human presuppositions within the widening child and camera assemblage. For example, the young girl explained

that her favourite American teen 'vlogger' (Logan Paul) frequently used the term '*Hashtag, vlog Dude'* to introduce himself on his YouTube video diaries. The young girl intended to emulate or 'reterritorialise' (Deleuze and Guattari, 2014) the phrase within her immediate encounters in the classroom. The girl 'reterritorialised' on the hash sign, however, in doing so, created a different version of the phrase. For example, she adapted the phrase to create an alternative '*hashtag, computer problems'* and '*hashtag, jinx',* which referred to her personal issues in school with the computer equipment at the same time she was filming. I suggest the wider child and camera assemblage opened up along lines of 'deterritorialisation' as the 'major language' of YouTube was dismantled by the child to create something new in the process, as she traversed multiple animations of 'fantasy' and 'reality'. I have reflected upon how the girl used the phrase '*Hashtag, Vlog Dude'* to articulate and showcase her knowledge of popular YouTube rhetoric, whilst creatively adapting the phrase to make her own version. As such, her attempts also earned her recognition and kudos amongst her peer group. However, the girl 'reterritorialised' on the phrase in quite a different manner each time and varied her tone, pitch and use of words, thereby creating an extremely individualised version for the classroom space.

Little episodes where the children emulated popular 'vlogging' phrases seemed so insignificant and scarcely noticeable, also quite annoying in the children's transitions and dalliances whilst filming, but they were everywhere in the video and it is worth exploring why. I believed this was the children's way of creating something new outside of the 'usual' mundane research film that replicated yet another classroom-based scenario. The audience, as far as the children were concerned, had changed from an academic (formal) to YouTube (informal) demographic. Their imagined audience was now positioned as an ally and familiar friend and, through this shift in 'imaginings', the children had gained their sense of 'mastery' and 'command' over the video production process by drawing on popular culture that was far removed from academic spheres. Their choice to operate the camera as a hand-held device provided the children with an opportunity to take command of the filming process with a renewed sense of power that opened the assemblage up to its potential, which mobilised somewhere between 'fantasy' and 'reality'. For example, the 'major language' of authorship and spectatorship associated with YouTube film making were drawn into the assemblage (Deleuze and Guattari, 2014) in both tacit and explicit ways. The

socio-material-discursive filming practice produced subjects and commanded a sense of social obligation (MacLure, 2016) as the children addressed an imagined audience who formed part of the collective.

As discussed, the children frequently extracted constants from the 'major language' of documentary film, for example, phrases such as '*hi guys, how are you today'?, 'Hey, this is cool, come and check this out, guys?,* whilst gesticulating and pouting into the camera lens. Yet, there was playfulness in their dalliances with the language, which functioned to free the '*order word'* (Deleuze and Guattari, 2014) from the containments of popular YouTube phrases. For example, as previously discussed, the young girl experimented with the '*hashtag*' phrase to produce her own individual version and, in doing so, created something new and significant that became a temporary mode of expression.

The children would frequently talk into the camera and introduce themselves in a confident and upbeat manner. I often pondered whom they thought they were talking to. Their eloquence, tone and manner seemed polished, practised and familiar. The passage of communication from one child to another and the pleasure in the 'transition, incorporated them as confederates in a territory that (was) traced by its movements between them' (Maclure, 2016:175). However, words and phrases alone could not operate as single forces through the assemblage; they co-existed with rhythmic repetitions of facial expressions, laughter, body postures, movements, all mobilised in the ad hoc operation of the ever widening child and camera assemblage.

Reanimating the roaming camera 'outtakes'

In the coming section, I continue to dismantle those taken for granted habits and common assumtpions made in relation to children and particpatory video practices. I re-engage with fragments of video footage recorded on the roaming camera that I had previously overlooked and initially deemed 'irrelevant' or 'unusable'. I suggest this was due to frame irregularity, over exposure and extreme close ups, making me unsure of the image and the knowledge it implied (Marks, 2000). I now take the opportunity and draw from the 'outtake' videos to explore meaning beyond those initial human-centric perceptions.

Figure 16 - Roaming camera, ‘outtake’ still frame (boy-hand-celling-teacher assemblage)

Images much like the one presented above (16) weave throughout hours of roaming camera footage. For the purpose of the thesis, I have defined an ‘outtake’ frame or sequence of video as a momentary distraction within the filming process, where the child has been disturbed from their immediate filming duties. Often these disruptions in the recording would occur due to teachers speaking to a child or because their attention had been drawn to other activities unfolding inside or outside the classroom.

This particular ‘outtake’ frame captures the moment a young boy hides the camera out of view from his teacher directly underneath the desk. The boy’s teacher leans in through the classroom door, her appearance can be seen in the top right of the image (16). I happened upon this particular ‘outtake’ shot during the editing stages and have often pondered at its worth and value. The image continues to draw my attention in unlikely ways and I question why I initially deemed the image as an ‘outtake’ worth exploring. As discussed in previous chapters, the ‘data’ seems to incite an intensity that acts beyond its immediate content and context, enabling a recollection of incidents and experiences from the research field ‘that generates sensations resonating in (my) body as well as the brain’ (MacLure, 2010:282). At this juncture, I turn to my field notes

and conceive a ‘line of flight’, in order to make connections and reanimate the content outside of its immediate installation.

> *The children swoop around the classroom, camera in hand. I allow my initial researcher anxieties to wane and sit to one side, taking comfort in thinking about what potentialities lay ahead. I watch as the children playfully navigate their way around the space of club whilst turning over the small camera device with great dexterity. They seem fairly proficient and familiar with the task of filming. I provide minimal instruction other than to go ahead and improvise with the camera. I watch as the device is passed around, the children act with an equal measure of gusto and carefulness, talking excitedly about the possibility of creating their own ‘vlogs’. I am sat to one side, feeling a sense of redundancy as the children take over. What am I doing here? I begin to lose track of the camera’s location as it is passed around the room. I wait with apprehension and excitement for the resulting film.* (Field notes, May, 2017)

The small size, rubber exterior of the GoPro meant that the children were physically able to hold and manipulate the square device in the palm of their hands with relative ease. Filming with the device from the hand-held perspective captured a range of emotions and behaviours (joy, surprise, intrigue, cheekiness), even if the child did not necessarily intend to record their dalliances. The children often talked, sang and danced as a performance into the camera. However, as discussed, activities outside of the immediate task of filming would often draw their attention resulting in a momentary distraction. The camera continued to film from obscure angles as it was plunged into all manner of orientations. I use the coming section, as an opportunity to ‘slow the research’ (Ratuio, 2017) process and re-engage with video ‘outtakes’. I do this with new insights that make visible the children’s understandings of participatory education video research that sit outside modern embedded views focussing on the what and the how. Instead, I focus attention on the children’s doing (of) filming - how they perform filming and make the filming work for their immediate experiences - using the GoPro camera. I pay specific attention to a selection of ‘outtake’ shots from the roaming camera and interrogate different kinds of video ‘data’ that acknowledges the

embodied nature of viewing footage and the role of the video camera in mediating this. In doing so, I theorise the camera and child as force of intensities that operate through a wider assemblage of bodies (human and otherwise) that has the potential to mobilise new social and cultural relations and contribute to changing the way we do video research in education.

Exploring video 'outtakes' through Deleuze's cinematic philosophies

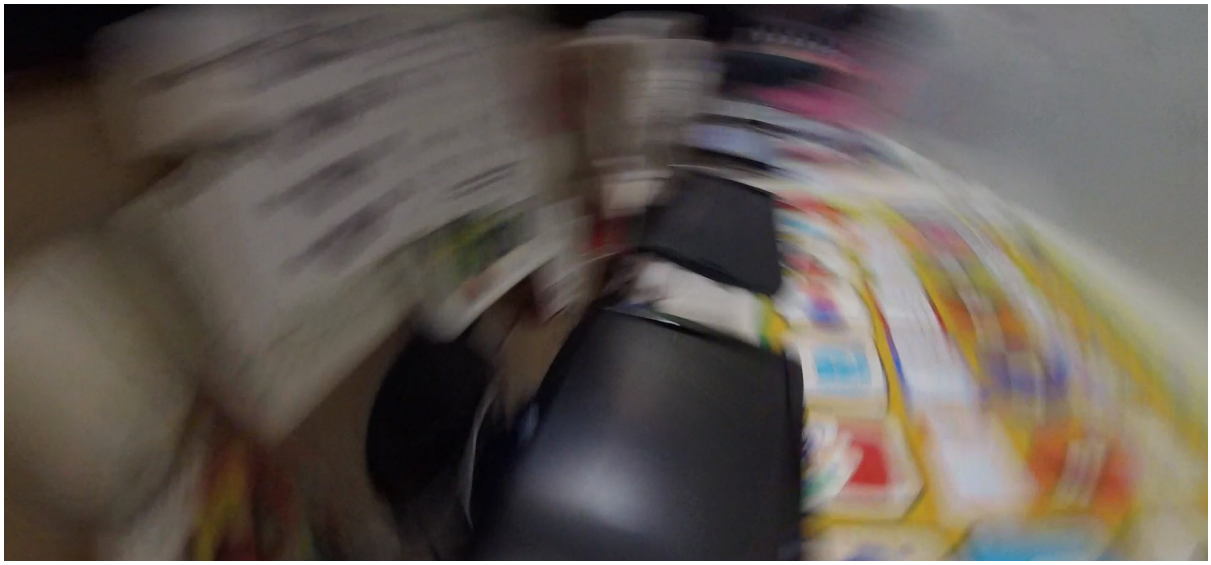

Figure 17 - Roaming camera, blurred still frame (computers-desk-whirlpool assemblage)

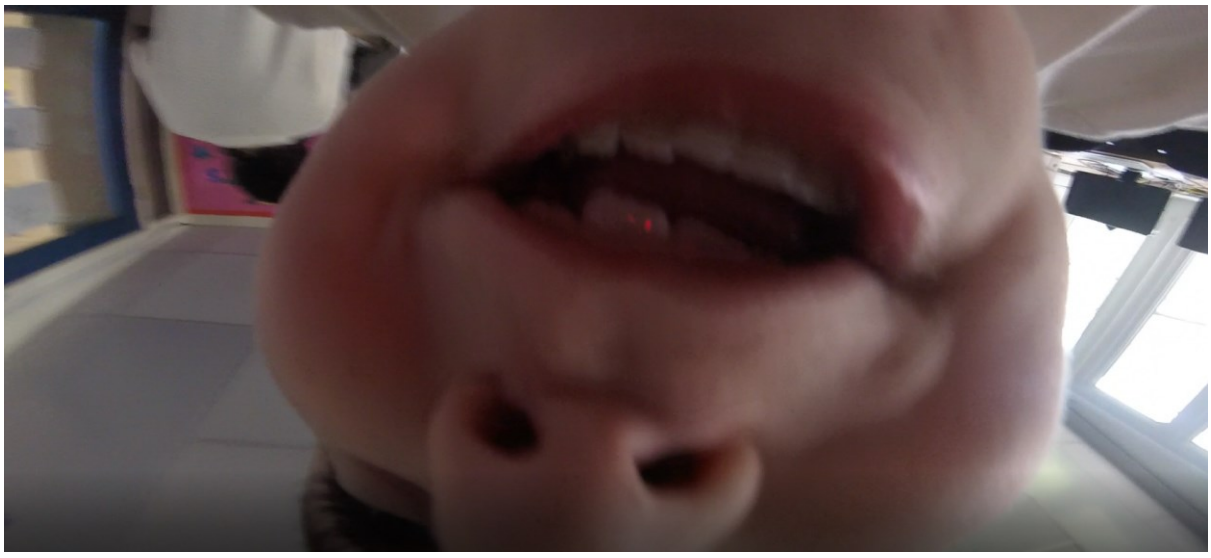

Figure 18 - Roaming camera, still frame (boy-mouth-nose-celling-teacher assemblage)

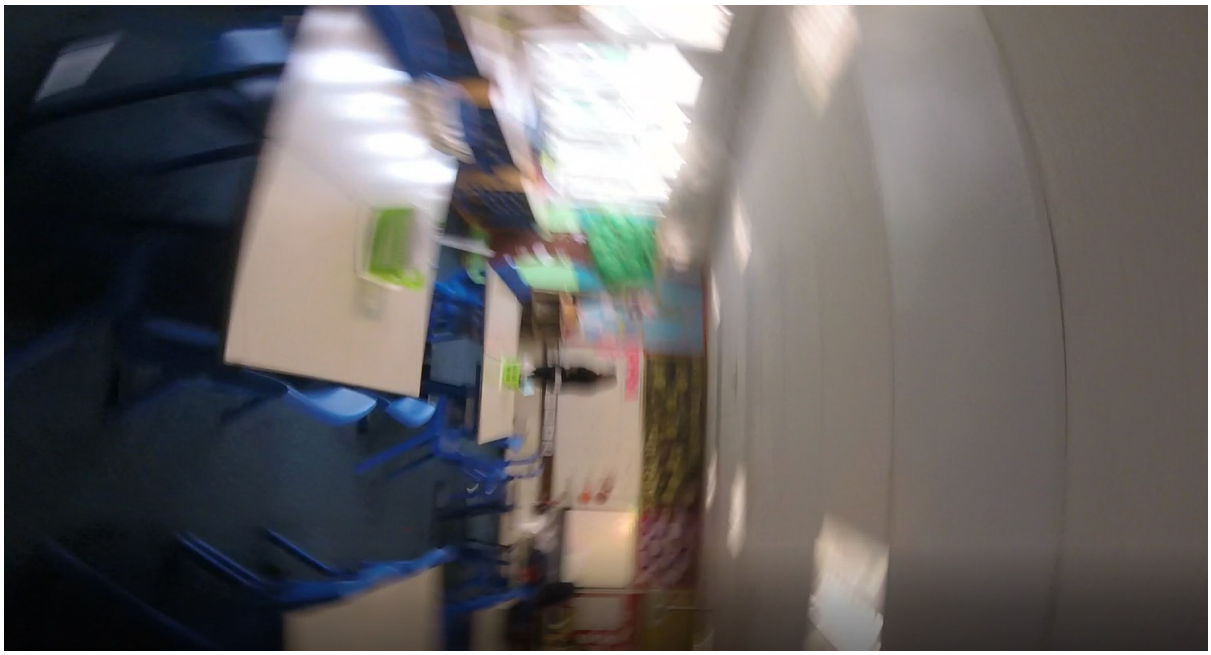

Figure 19 - Roaming camera, blurred still frame (desks-chairs-floor-celling-teacher assemblage)

In the coming section, I attempt to use Deleuzian (1986, 1989) screen topologies to re-engage with several 'outtake' images (17, 18, 19). I draw on concepts inspired by Deleuze's cinema books, *Cinema 1: The Movement-Image* (1986) and *Cinema 2: The Time Image (1989),* to build on Elwick's (2015) work, who argues that engaging in viewing different kinds of video data helps the viewer to acknowledge the embodied nature of viewing footage, and the role of the video camera in mediating this. I interrogate how the 'outtake' frames might be recognised through Deleuzian (1989) notions of '*any space whatever'* in considering 'how does the film do what it does?'. I aim to provoke thought and move beyond normative understandings of human movement and representation. Deleuze (1986) suggests that, like everybody else, researchers organise their worlds, in order to make sense through sensory-motor schemata. De Freitas argues 'research treats the video image as movement-image or picture, a recording of 'raw data', indexical of a given time-space relationship' (2015:319). For example, most research in classrooms now relies on video data and de Freitas (2015b) explains that a particular image of the human body is produced and services particular types of learning theories based on human motion. The problem being that classroom video research standardises human bodies through mechanical

movement that structures time without representing bodies as sensory motor actions, for example, how senses play a part in performing out the body. However, there is a need to move on and experiment with a new visual practice, de Freitas suggests;

> embrace the pure optical and sound images of modern cinema (…) to perceive movement not simply as a sensory-motor image, but as a multifarious temporal dimension of the image, dimensions that never stop growing. (2015:568)

I draw from such standpoints and attempt to reach beyond given time-space relationships in the video footage that have been dominated by the over coding of human bodies. Instead, I begin to map new visual ontologies for contemporary classroom research that recognise visual content beyond those mechanical and sensory, human-centricities.

In Deleuze's (1989) book *Cinema 2: The Time Image*, he invites us to consider the perception of time through a philosophy of cinema, as delineated in early chapters of the thesis. In the time-image, he does not see time as a logical connection or progression but as interval, disruption or difference; Deleuze refers to this as a 'deterritorialisation' of the image. The 'outtake' images, I suggest, provoke an immediate aesthetic effect where the spectator is forced to question the discernibility of the space, which is no longer a sensory, motor image, but opens a different kind of image – a non-metaphorical image of the 'thing in itself' in its intolerable 'excess of horror or beauty' (Deleuze 1987:20). It is worth taking some time to fully interrogate what such philosophies may open up to further understand the roaming camera 'outtakes' through an alternative ontological prism.

We might consider the stills (17, 18, 19) as disruptions to the flow in the action as it unfolded. The linear sequence of film was momentarily disturbed, due to various events that drew the child's attention away from the immediate task of filming and I define this as an 'outtake' as opposed to the chest-mounted camera that filmed from a fixed position. I suggest the 'outtakes' emerged through the process of human involvement and those choices the children had to make whilst handling the camera and juggling those other competing distractions within the surrounding environment. For example, the children would often sing, dance, run, jump and engage in lively conversations with their peers whilst holding the camera. Deleuze (2014) explains, we witness a 'jam or break' to the action-oriented schemata as movement (human and

otherwise) is disturbed and those space-time coordinates become indiscernible due to the blurred and irregular nature of the shot. With reference to the above images (19, 20, 21), such moments occur as the camera is plunged into various orientations, close ups, fast-paced, spiral movements that created this type of on screen aesthetic. The sensory motor schemata in the above examples make way for something else, movement of another kind. The images operate through moments of 'deterritorialisation' (Deleuze and Guattari, 2014) that create a disjointed sensation or jolt to perception that we associate with the dominant 'movement-image' (Deleuze, 1986). At this point in the action, time is no longer the measure of the movement, (Coleman, 2011) but movement becomes the perspective of time. In this sense, the passing of time is no longer only perceivable through human movement and our attention is drawn to other kinds of movements incited by the blurring of objects, bodies, colours and textures within the images (17, 18, 19). As a spectator, we are never impartial and never objectively observing, we are fully imbricated within the experience of coming to view and sense the video stills in new manners.

For example, the movement-image and its sensory-motor signs open up an indirect relationship with time, where time (duration) is subordinate to the movement unfolding on screen. We might consider Deleuze's notion of the 'time-image' that functions as a reversal of the movement-image and one that liberates time (duration) from human movement. A haptic visualisation ensues as the viewer's optical regime is made indiscernible and we move away from a one dimensional space. The movement image has not disappeared but 'now exists only as the first dimension of an image that never stops growing in dimension' (Deleuze, 1989:22). Therefore, the image may be flat but assumes all the more dimensions of power that go beyond this space. A new type of movement occurs that is 'multi directional' and is the perspective of time. Deleuze suggests,

> The image had to free itself from sensory-motor links; it had to stop being action-image in order to become a pure optical, sound (and tactile) image. But the latter was not enough: it had to enter into relations with yet other forces, so that it could itself escape from a world of clichés. (1989:23)

As suggested, the spectator is fully imbricated and we are forced to create a new, ever widening system of events and potentials considered through the cinematic philosophy of the 'time-image' (Deleuze, 1989). The 'outtake' frames work in two ways, one that

structures and confines the experience and makes it perceivable to an audience that is removed, but also engages the audience in a process that foregrounds the potentialities of the event, beyond human movement and within the widening assemblage of forces. What seems crucial to draw on is the child and camera encounter in terms of its co-constructive capacities and what these different frames make possible to know beyond human movement alone.

'any-space-whatever': Opening up the roaming camera 'outtakes'

I draw the 'outtake' frames (17, 18, 19) into conversation with Deleuze's cinematic philosophy of '*any-space-whatever'* (1989). I do so to interrogate what more the still frames might offer in knowing the phenomena beyond initial perceptions and associations with human movement alone.

Deleuze invites us to consider the notion of '*any-space-whatever'* (1989), which can be extracted from a given state of things through his cinematic philosophies of the 'time-image'. He provides the example of expressionism that operates with darkness and light, giving space a great depth and a distorted perspective.

I suggest the irregular angles and blurred aesthetics created by the 'outtake' images open up a new arrangement of spatial transformations, aesthetic considerations and styles. This is in contrast to the static camera, which Deleuze describes as a 'uniquely spatial determination, indicating a 'slice of space' at a particular distance from the camera' (1986:24). There is a significant amount of the video footage where movement remains attached to elements, humans, non-humans, materials that are in shot that also serve as movements' vehicle (see video clip 1 for an example). Deleuze suggests that these are primitive states where the image is in movement and the sense of time remains subordinate. I wonder how the 'outtake' frames open up phenomena that helps extract movement from bodies and from their organising structures of everyday life. I suggest they might achieve this by maximising their own internal powers (Colebrook, 2002) that are constituted through notions of '*any-space-whatever'*. For example, we are forced to move from a determinate space, a space that can be recognised, to an indeterminate space, which operates within shades, colours, flesh, materials and objects. Deleuze explains 'depth is the location of the struggle which sometimes draws space into the bottomlessness of a black hole, and sometimes draws it towards the light' (1986:111). The camera draws the space of

computer club into this black hole where the image's 'horror or beauty' (Deleuze, 1986) is made perceptible through the distorted frames of reference that also aid in displacing the coordinates of the children and the wider temporal space of computer club. The notion of '*any space whatever'* is no longer a space that is defined, instead the orientation of bodies (human and otherwise) in shot are not determined in advance, and can be recorded in an infinite number of ways.

There is also no temporal order within the 'outtake' images; they serve to provoke the senses and disrupt initial perceptions of those determinate places. I suggest the images operate as an 'assemblage' of forces that decentre the human within the encounter, offering a way to recognise those other potential forces at play (light, material, colour, shade and objects). Coleman (2011) suggests this is not merely enough; the image also has to enter into relations with yet other forces so that it can escape a world of clichés. In this sense, the molar line (status quo) has been ruptured and we are able to reach beyond our initial perceptions based on human movement and behaviours. Alternatively, the image opens up and makes perceptible those other potential co-existent forces, such as colour, objects, texture and light, that affect and are being affected by human bodies and behaviours within the wider assemblage.

Concluding Overview

This section shared experimentation and analysis of two different configurations of the GoPro camera, the types of bodily responses and video footage produced through these configurations, and how the videos and still images take on a life of their own in research with children and digital media. I have argued in earlier chapters that there is a need to further theorise the visual ontologies underpinning the choices and the production of video research with child participants. I highlighted the importance for visual researchers to reconsider their hierarchical adult 'gaze' and resist the lure of 'naive empiricism' (Elwick, 2011). I joined conversation with de Freitas (2015, 2016) to recognise how those underpinning and dominant visual ontologies used to '*make sense*' of educational video research are strongly linked with the intellectual heritage developed by Twentieth Century, scientific cinema. Early scientific cinema experimented with visual techniques that coded and regulated the human body to increase the efficacy of workers during industrialisation. Such visual ontologies are still inherent within our modes of engagement and manners of understanding bodies in educational visual research today and it is time we acknowledged an alternative mode.

Using video footage from the chest-mounted and roaming camera, I have attempted to reconceive how such educational video data might be re-thought beyond the pure optical and representational power of the image. I have offered a way of reaching beyond motor-sensory, mechanical human movement that has contained certain developmental approaches to children in classroom-based scenarios. I recognised the multi-faceted dimensions incited by the image and how the film operated as a visual mediator that had the capacity to destabilise subject and object distinctions. Through these distinctions, concepts are mobilised (Manning and Massumi, 2015), not to frame events but to activate and make felt how the spectator and video co-existed. Building on Elwick's (2015) work, I engaged in viewing different kinds of video footage that acknowledged the embodied nature of spectatorship and the role of the video camera in mediating this. In doing so, I have offered the camera and child as a force of intensities that operated through a wider assemblage of matter and meaning that also has the potential to mobilise new social and cultural relations and contribute to changing the way we do video research with children in the future.

Chapter 7:

A future video research practice: Children, cameras and the philosophy of assemblage as creative playmates

Preamble

Attempting to reduce down into a neat synopsis the heterogeneous, complex, rhizomatic and post-qualitative ventures I have taken into child participatory video research has been a challenging task. I have first had to re-read the preceding chapters and attempt to pin down the emergent thoughts and nuanced practices that have evolved in negotiating the unstable terrain of a Deleuzian-inspired inquiry. As a brief recapitulation, I started off with three distinct research questions, which I later moved away from due to the realisation that they seemed to pose human-centric problems that needed to be responded to 'with recognisable knowledge that cohere(d) to a master discipline' (Jackson, 2017:671). As a result, this initial pursuit for

'betterment' risked becoming an unintended obstruction to other routes to knowing about the children and the video phenomena at hand. The remainder of the thesis explored what these 'other routes' might look like.

In this final discussion chapter, the aim will be to revisit the main insights and concerns emerging from this post-qualitative study, and to explore some implications for video research with children and for the further development of post-qualitative methodology. The study was framed by the broad and open-ended question *'What are the methodological potentials for a GoPro camera in a school-based computer club*? The question has allowed me to respond to the unfolding inquiry without sacrificing agency or validity, and in the opening section I reflect on the implications of my study through three disparate, yet inter-linked, sub headings that frame the inquiry's contributions within the following areas.

The first concerns the implications for the wider field of video research, particularly in regard to how researchers might use alternative yet concrete approaches for gathering and analysing video data through the prism of a speculative theoretical lens. I will suggest that my work offers a contribution to the field in theorising the potential of the GoPro camera and similar technologies that prompts a glimpse into what video research has the potential to become.

Secondly, I will argue that the research makes significant contributions to the field of video research methodologies. Such methodologies are often mobilised in a context where post-qualitative visual methodology has become somewhat uncomfortable with itself; where ideas for video research proliferate and have often resided in using visual or arts methods in ways that increase analytical clarity and understanding in accordance with established post-positivist models of the research process. I have attended to the ecologies of research, or what Springgay & Truman (2018) term the 'thinking-making-doing' of research, that moves beyond representation and interpretation and 'provokes an ethics that is accountable to a material world' (2018:206). My inquiry has become a process of 'exhausting terminology' and what is already known, in order to consider how methods might create problems. My study is amongst a small number (Manning, 2016; Truman & Springgay, 2015) of studies seeking philosophy as practice that sit at the intersection of arts and the sciences. I suggest the notion of assemblage (Deleuze and Guattari, 2014) has offered an

alternative route to reimagining the video research process moving towards an approach that creates less clarity and certainty rather than more, which has important implications for the field, as I will later discuss.

Lastly, the study contributes to the development of child participatory video research that recognises child subjectivities differently. I suggest my study still remains grounded in an interest in children's lives and wellbeing, but from a much more de-centred theoretical viewpoint than is often the case. I highlight the process of 'video-blogging' (vlogging) with the GoPro camera that I theorise as a performative-material-discursive route to understanding how children and technology are mutually imbricated in animating multiple realities.

In the final paragraphs, I consider the limitations and tensions of working at the fringes of post-qualitative inquiry and how ethics might be reconstituted in building an alternative foundation of care between humans and 'more-than-human' entities within a speculative inquiry. Finally, I address possible avenues for future research.

Video data sensing: a contribution to approaches in working post-qualitatively with large quantities of video footage

There has been much debate about the advancements of digital technology having the potential to change what social science visual research might become. Post-qualitative engagement with video data is a relatively new field, to which my research hopes to contribute. There has been much experimentation with children and video/visual imagery in post-qualitative research (Hultman and Lenz Taguchi, 2010; de Freitas, 2015; Lenz Taguchi, Palmer and Gustaffson, 2016) but there is still little guidance for how to engage with large quantities of video footage within a post-qualitative framework.

My work offers a contribution to the field in theorising the GoPro camera and the subsequent video footage as performative-material-discursive entities. I have formulated the practice of '*video data sensing',* as a pragmatic and concrete approach to the 'gathering' and 'analysis' of video data that provokes an alternative manner of engagement with the imagery.

The method of '*video data sensing'* has implications for the field by responding to the current post-qualitative dissatisfaction with existing methods for data analysis in a very practical way. Despite substantial critique and theorisation about dominant approaches (St Pierre, 2011; MacLure, 2011), few have offered practical methods for how we might go about the business of 'selecting' and 'analysing' video recordings within the 'ontological turn'. As such, my study presents tangible experimentations with the GoPro camera and resultant video that provides an effective route to recognising the phenomena through an alternative theoretical orientation of the world.

As highlighted (chapters 2 & 6), the issue regarding the quantities of footage produced became apparent when both the children and I often found ourselves experimenting with the GoPro device that was equally worn, mounted or incorporated into the action in a number of ways. Due to the camera's digital capacity to record and save extended sequences of film, I very quickly accrued hours of high definition footage with no idea how to make sense of obscurities, indiscernibility and non-linear shots that dominated the filming process. Due to my preoccupations with the equipment and quantities of footage produced, I missed opportunities to engage with the children in a more productive and fluid manner. As such, this seemingly post-positivist approach to data gathering provoked me to question its worth and value within a speculative inquiry that no longer seemed to resonate. I recognised the quality and content of the final video that was useful and plentiful, yet it became less of a focus over time and more of a distraction, as I discussed within the chapter 3.

The shift in my thinking and practices came in considering the video footage as performative rather than representational. As such, it no longer made sense to note specific time sequences or subdivide fragments of video into categories that related to its usefulness or not. Instead, the 'process' of videoing but also watching the video became the key tenet and subsequently logging the video clips was no longer productive within my methodologically-driven study. The question became, what were the children and I 'doing' when we were 'doing' the videoing or 'analysing' the content and not what does the resultant video mean? I re-attuned to the 'process' of videoing from the inside (Barad, 2007) in a 'researcher-data-camera' assemblage (Deleuze and Guattari, 2014), whereby the 'gathering' and the 'analytical' process became retelling of a different kind. Manning and Massumi (2014) explain

> this co-habitation does not involve giving words to art any more than it involves making philosophy (or politics) artistic. (It is) the practice of creating the conditions for their differential to be felt. The question: what kinds of inflections does this differential create? What kinds of processes can be brought into existence at the interstices of difference. (2014:154)

As detailed, I grappled with around 40 hours of footage accrued from the chest-mounted, head-mounted, static and roaming camera and the thesis draws on several still frames and three short sequences of film. In some respects, I feel that I have 'short changed' the project by not drawing from the full catalogue of footage at my disposal. Yet, the inquiry was far more subtle than this and the knowledge slowly emerged in coming to recognise the video data as a performative-discursive-material entity rather than what the hours of footage represented as a final conclusion. For example, watching a performance of the video footage in the general sense meant engaging directly with the screen, paying specific attention to forms and content in full. Instead, I considered how the looping of the film in the background of my home office functioned as a performative entity that drew on my other senses. What I wanted to avoid doing was keep producing questions but to 'step to the side of the question' by 'focusing on the process instead of form' (Manning, 2016:14). Engaging with the video content in this unorthodox manner, it became possible not only to raise the issue of 'object' in questioning how a full focus on the video footage was similar in many ways to situating the subject (myself) as the privileged human initiator of the experience, but instead to make felt the 'intervals, the openings and captures within the process that was on its way to becoming a practice' (Manning, 2016:14) of its own.

The '*doing*' of video research: A future practice for video-based inquiry in the 'ontological turn'

As discussed in chapter 3, an important approach to *'video data sensing'* is not only experimenting with the source images but recognising the physicality (St Pierre, 1997) of the video data 'gathering' and 'analysis' processes. In other words, as part of the process I re-attuned to what I was '*doing*' when I was at home or in the field conducting what I thought was video data 'gathering' and 'analysis'. This enabled me to begin to recognise my embodied responses and immersive approaches to '*sense*' the content in new manners. As discussed, I started to loop 'blurred' and 'obscure' sequences of film on a monitor in the corner of my home office. This was an odd and unconventional practice but functioned as a disruption to familiar modes of spectatorship that for me

produced limited, pedestrian and human-centric accounts of the unfolding action on screen. In re-positioning the screen, yes, I intentionally avoided direct eye contact with the video content, yet the combination of flickering sound, colours, light and movement resonating from the screen caught my eye throughout the day and became both an irritating yet familiar 'background' disturbance. I would often look up from my task in amusement, intrigue, wonder and bemusement at the phenomena unfolding on screen. The video footage worked its performative-material-discursive forces within such moments that changed my researcher subjectivity in the process. I found amusement in the children's carefree and infectious attitudes towards the filming process as they animated their surroundings with the GoPro camera with curious and peculiar practices. I often lingered on footage that included the children's close up frames, facial expressions and humorous gesticulations into the camera. I would leave the sound on low and other times mute as a further disruptive practice to draw distinctions between the visual and audio content. However, this became a tricky task as both the sound and the visual operated independently and in unison as affective sensory forces that shaped and disrupted my responses to the unfolding video phenomena at hand. I recognised the video footage undulated and animated assemblages of bodies (human and nonhuman). These encounters did not represent the children in the classroom but incited 'new modes of thought and different practices of relating' that set the 'event of thinking-making-doing in motion' (Truman and Springgay, 2018:204)

I formulated the practice of '*video data sensing'* as a two-fold practical approach, first to 'think with practice' (Truman and Springgay, 2018), to dislocate those normative modes of engagement associated with direct spectatorship of film and theatre, where full concentration is required on the content and form of the 'performance' itself. Instead, I engineered an unorthodox mode of spectatorship that operated to draw my attention to the content of the film in an indirect yet intriguing manner. I re-attuned to the performative power of the footage that unfolded through my other senses of touch and hearing. However, indirectly attending to the video provoked other more subtle senses and feelings of space, balance and movement. In this sense, not paying direct attention to the content and form meant the video data operated in a new manner, as I re-attuned to my evolving position in the room, the changing heterogeneous space and my disturbed sense of balance as I negotiated two or more tasks at a time. The

idea was to use practical methods to pose alternative problems and this unorthodox mode of engagement with the video data became a way to grapple with methods as affective ecologies. For example, in moments of intrigue I often re-orientated my position throughout the day to face the looped video playing in the corner of the office. Movement of a new kind felt palpable in moments like this, as I attended to the screen and tilted my head in bemusement at the various blurred, irregular and close-up shots of the children. I suggest this was one route to think movement moving (Manning, 2016) that was infused with human and nonhuman forces. The images presented throughout the thesis are more than simply a product of my human intent upon the selection process; they are generative of those relational encounters between human, digital, light, sound and colour entanglements.

The method of '*video data sensing'* has a practical application to engage with the video 'data' through an alternative manner. As previously discussed, watching the footage as a 'performance' per se resulted in the disregard of much of the footage produced. I initially deemed hours of film 'irrelevant' and hard to watch as the children ran, jumped and swirled around filming with the camera. I suggested in chapter 5 that '*video data sensing'* and experiments with digital pixels might be one concrete approach to 'sense' those more indiscernible, peculiar or hard to '*make sense'* of images that often evade familiar, socio-cultural categorisations. Inciting a 'haptic' mode of engagement through experiments with the pixels coerced an embodied response to the video 'data' that illuminated multiple animations of the world. It was my embodied responses to the experimental video data that enabled and/or disabled my ongoing engagement and understanding. As Manning suggests

> the grand gestures of a macro politics most easily sum up the changes that occurred to alter the field, it is the minoritarian tendencies that initiate the subtle shifts that created the conditions for this, and any changes. (21016:1)

In attuning to a new subtle sense of vulnerability, I continued to apply a sensory and embodied approach to the video 'gathering', 'selection' and 'analysis' process. As discussed, I chose to re-vision the source video from the roaming camera and, in doing so, I slowly recognised the discrete and nuanced ways in which the children and I, built a rapport with the GoPro camera. For example, I watched the video and recognised the children using the camera in peculiar ways that produced blurred, irregular, upside down frames. The various obscure frames of reference animated

their surroundings in intriguing manners, whilst simultaneously coercing my attention to take a closer look at what I was beholding. Much of the roaming camera footage the children produced as personal 'vlogs' (video-blogs) also became powerful, unfolding, discursive practices that altered subjectivities and modes of engagement in multiple ways. In chapter 6, I suggested the wider socio-cultural influences of YouTube and the online practice of 'vlogging' (video-blogging) were equally imbricated in how bodies, materials, video footage and filming practices unfolded and mutually animated the space of computer club. Rather than being merely trivial or circumstantial, 'vlogging' with the GoPro camera exerted a profound influence upon the children's selves and the intriguing ways the action unfolded. The practice of 'vlogging' opened up a multi-directional animation of computer club that also drew on the spectators' senses. For example, the children used the camera to animate their surroundings as they swirled and bounced around the classroom, equally, the GoPro camera animated the children within these mutual imbrications of bodies (human and otherwise) and more can be said about the unfolding relations.

What might become thinkable for video research: the technique of 'turning over' video footage

As discussed, I set out to sense the video data in an unorthodox manner and a significant amount of video footage remained blurred, indiscernible and physically difficult to concentrate on for long periods of time. I formulated the process of '*turning over'* the video data, building on MacLure's (2010) notion of data that 'glows', to offer fragments of video that reanimated experiences that resonated in my body and consciousness. The concrete process of '*turning over'* the video 'data' provided a more substantial theorisation of what it meant to be produced by the 'data' through my ongoing participation and engagement. I considered the process of *'turning over'* the video footage as a functional and aesthetic act that was not determined by human intention alone but created through my material encounters and experiments with the digital software and recording technology. As such, the fragments of data presented throughout the thesis are generative of an aesthetic act created through the process of digitally '*turning over'* the video footage to produce something new and previously unaccounted for.

Using the method of digitally '*turning over'* the video footage, in chapter 5 I experimented with the pixels using one still frame to attune in a new manner to the

content. Experiments with pixels became an unlikely route to question how the high definition GoPro camera worked to produce questions based on what bodies might be able to do in this new configuration of matter and meaning. I focussed on what digital experiments with high-resolution video might open up; in this sense, my experience became 'the experience' and that experience allowed me to sense the affective impact of the video that reached beyond those initial perceptions incited by the source image.

By this I mean, I began to recognise the material practices and wider discourses that intertwined within the production of the video that far extended what could be 'literally' viewed. For example, whilst directly engaging with the video, I began to recall conversations had on the day of filming, the laughter and jokes with the children, the noise and chaos, the technical problems, the humid heat and low-level lighting in the classroom. Each of these human and 'more-than-human', 'other-than-human' entities were imbricated and generative of the video phenomena at hand.

I present the concrete and sensory methods of digitally '*turning over'* video footage and *'video data sensing'* as an important implication for the field that responds to the current post-qualitative dissatisfaction with existing methods for data analysis in a very practical way. As noted above, there are still few practical methods for how we might 'deal' with video data through a speculative approach. My study presents tangible and pragmatic experimentations using video footage that offer a route to how we might go about the business of effectively 'gathering', 'selecting' and 'analysing' our video footage through an alternative theoretical orientation of the world.

Implications for video research methodologies

In a context where post-qualitative visual methodology has become somewhat dissatisfied with itself, as discussed, ideas for arts-based research methods proliferate, yet are often about using visual or arts methods in ways that increase analytical clarity and understanding in ways that fit established post-positivist models of the research process. My study contributes to the field of more speculative video research methodology (Manning, 2016; Truman & Springgay, 2015) that seeks arts methods as a route to reimagining the research process that creates less clarity and certainty rather than more, and this has far reaching implications for the field.

Inspired by the philosophies of Gilles Deleuze and Felix Guattari (1987/2014), who recognise matter and meaning as coexisting in complex 'assemblages', the inquiry

foremost examines how children, a GoPro camera and the resultant video footage work in co-existence to create the video phenomena at hand. In recognising the heterogeneous relations through concepts of 'assemblage', the central tenet of the thesis has not been located within one single subject, but 'produced in relation with material-discursive human and non-human other' (Murris, 2016:29).

Both substantive 'analysis' chapters (5 and 6) combine to provide a definitive methodological contribution that theorises the camera and video phenomena by presenting, on the one hand, a closed product recognised through 'socio-cultural' systems and on the other video footage that is capable of opening and animating multiple realities and ways of knowing those realities. The recordings conspire to change the way we might use video data to see children differently and to remind us that our initial perceptions are hinged on deep rooted representational ontologies that have remained embedded since early nineteenth century scientific film.

Within the literature, I drew from early scientific film to delineate how representational and interpretive practices have come to dominate and how we might move on from such dominant ontological standpoints to recognise multiple animations of the world. For example, I have learnt to recognise an alternative mode of sensing specific fragments of video using experiments with the pixels, where movement of bodies (human and otherwise) might be traced as mutually imbricated within the phenomena. I have moved beyond simply registering the image according to those wider signifiers associated with standardised performance within classroom spaces. As I have suggested, I use ontological standpoints that reject arborescent systems that privilege human kind over other matter; instead, I respond to an open-ended system infused with other forces and bodies (human and otherwise).

I have experimented with Deleuze and Guattari's (2014) philosophies that enabled me to recognise that the 'reality' of computer club viewed through the frame of a camera lens was not the criteria for analysis of the video recordings produced and, as such, the discussions have been generative of the video content itself and what might be made possible, if we trace those other competing forces and intensities at work within the image.

Deleuze and Guattari (1987/2014) offered the concept of '*assemblage*' so that we can begin to understand how much more complex our entanglements are with matter, forces and material-discursive practices that are repeated and hold everything in place in the world. I theorise the video, camera, objects, bodies (human and otherwise) as functioning through 'assemblages' that become the tentative holding place of fragile 'comings-into-relations' (Manning, 2016). I attuned to the potential in thinking life with and beyond fixed notions of child subjectivities to recognise life as 'more-than-human' and 'other-than-human'. In an attempt to capture those 'coming-into relations', it seemed to be a much bigger and much more ungraspable process than what either filming, field notes, observations and video footage could ever have offered me as a method alone.

I gradually attuned to the manners in which I became physically embroiled in the research and within the many 'assemblages' that formed and reformed mine and the children's subjectivities. I suggested one way of doing this was to recognise the various ways of attuning to the 'physicality' (St Pierre, 1997) of 'doing' the video research, for example, what I was 'doing' when I thought I was gathering or analysing the video 'data' (chapters 2 & 5). Recognising the 'physicality' of performing the research was utile in breaking down the hierarchical researcher 'gaze' that led me to determine what I thought was real and right with the world. As Manning and Massumi explain

> it is pragmatic in the sense that it is concerned with the singularity of how this practice does its work under these conditions. (2015:4)

In this sense, attempting to recognise the phenomena from a non-judgemental, human standpoint was a tricky affair and grappling with such philosophies was generative of knowledge per se.

At the end of the research process, I can make an assertion that the conceptual language of 'assemblage' might be used more broadly as a creative 'tool' at the cross section of social science, arts-based practice and video research methodology. By this I mean, recognising the world through a system of open-ended 'assemblages' is useful in theorising GoPro technology as a performative-material-discursive device that helps to trace how human-kind and digital technology are mutually imbricated in animating multiple realities. In addressing this potential, I have become more committed to

recognising the micro political encounters that emerged within the filming process. For example, I suggested the process of filming with a GoPro (worn on the chest, head, hand held) incited a multidirectional animation of the world where the children worked in co-existence to animate their surroundings as well as the spectators' thoughts and senses (chapters 5 & 6). Equally, the surroundings and the GoPro camera animated the children's imbrications within unfolding events. As such, I described the filming process as an open-ended 'assemblage' of rhythms, forces and movements (human and otherwise) that far extended the distant and optical perception of the video produced.

Moving forward, such thinking has woven into my everyday teaching and research encounters in a multitude of ways. This has not called for a complete rehash of my practices, it has been a much more subtle affair. For example, I outlined that I no longer felt detained by binary systems that prompted a way of negotiating the world according to '*staunch practices'* versus '*anything goes'* (Jackson, 2017). They subtly emerged as I engaged deeply with those problems and conundrums that were generative of negotiating a new conceptual space, somewhere between fixed and fluid orientations of the world. For example, I drew on seemingly staunch and familiar qualitative research frameworks to understand what might be opened up through experimentation. Indeed, the process required a renewed attentiveness to the unfolding relationships between human and non-human entities that often went unnoticed. This was not a study of 'anything goes' but a careful consideration of what 'familiar' qualitative terms and practices might become in the 'ontological turn'. Manning and Massumi, understand

> it is not about "letting things flow," as though unconstrained interaction were sufficient to enable something "creative" to happen. In our experience, unconstrained interaction rarely yields worthwhile effects. Its results typically lack rigor, intensity, and interest for those not directly involved, and as a consequence are low on follow-on effects. Effects cannot occur in the absence of a cause. The question is what manner of causation is to be activated: simple or complex; functionally prescribed or catalyzing of variation; linear or relational (co-causal)? (2015:6)

I suggested such shifts in my thinking with the world, rather than about the world, might be recognised in the ways I have come to participate in certain visual and interpretive exercises, where I questioned those 'taken for granted' ways of knowing about children and childhood. For example, I might advocate certain philosophical standpoints to my

students and delineate the advantages and limitations for their use, but recognising on both our parts those quiet reflections, moments of discernment and attempts at engaging with alternative theories in a new way must be accounted for and validated as a knowledge making process in itself. My research has also made me re-think teaching and learning, not as a two-way relationship between human subjects, but as a more complex 'intra-action' that involves the materiality of bodies, objects and the circulation of affect. Furthermore, my research complicates the notion of the teacher as separate from her 'subjects' and ideas of evaluation and judgement from a distanced perspective, so that we might arrive at more immanent ecologies of practice. I suggest that theorising the GoPro camera as a performative-material-discursive device is one way to trace how children and technology are mutually imbricated in animating multiple realities.

Implications for the wider field of child participatory video research

The thesis makes contributions to the field of child participatory video research that still remain grounded in an interest in children's lives and wellbeing but from a much more decentred viewpoint. In doing so, I have theorised the GoPro camera and resultant video as performative-material-discursive operators that express how children and technology are mutually imbricated in animating multiple realities of the classroom.

Within the opening section of the thesis, I problematised my experiences as a childhood studies lecturer and humanities student that have, in the past, become characterised and dominated by different framing practices for debating children and childhood that privileged particular social studies. I highlighted how video research methods with children have become more creative and experimental over the last fifteen years (chapter 4) and, in this time, some video-based studies with children (Maclure, Holmes, Jones, MacRae, 2010; de Freitas, 2015a, 2015b; Taguchi, Palmer, Gustafsson, 2016) have pushed beyond dualist categorisations to consider child subjectivities in new ways. However, there still remains a need for further work to comprehensively explore the reconfiguration of video data, camera equipment and human subject within such ontological entanglements.

Inspired by de Freitas (2015a, 2015b), who showed that social constructivism is not the final solution to understanding the lives of children in classrooms using video-

based research, my motive was first to understand why such ontologies still dominated our understanding of children and childhood within visual media and research. In doing so, I engaged with literature from early nineteenth and twentieth century scientific film to discover that the representational power of film was deep rooted within early practices of capturing and recording the human body in motion. Early scientific films were dedicated to understanding human physiology that attempted to trace the human body as a series of motor mechanisms for the purpose of regulatory and standardised approaches and to increase the efficacy of workers throughout the industrial age. In the early chapters of the thesis, I highlighted that such visual ontologies structured, contained and coded human bodies (Doane, 2002) in accordance with hierarchical, human-centric and divisive modes of knowledge that standardised human performance over all else. I problematised how educational video research remained influenced by such ontologies that recognised child subjectivities in similar ways that rendered performance against a set of measurable frameworks and linear trajectories towards adulthood.

My appreciation for how early visual practices were experienced by audiences and became meaningful in shaping the world were crucial to developing my methodological driven study. For example, my research into early scientific film functioned in a two-fold manner. As discussed, I recognised how notions of spectatorship and authorship were being shaped by the world, while at the same time evolving practices of spectatorship and authorship shaping the world. My aim was to experiment with how the GoPro camera might be considered as something more than simply a tool to capture reality in a more efficient and convenient format. I recognised how the GoPro camera and the video produced were materially implicated in knowing the lives of the child, how the camera shaped those lives and, in turn, how it was deeply implicated in the formation of those lives (Ruppert, Savage & Law, 2013).

Mindful of both practical and methodological considerations relating to the video ‘data’, the salient question became not ‘what the images meant’ but ‘how they worked’. I found resisting an anthropocentric lens and not focussing on the children’s features and behaviour very difficult (Hultman and Lenz Taguchi, 2010). I used familiar socio-cultural terminologies to describe the content of the video based upon its representational power. I described (chapter 5) the child in relation to gestures, facial features, surroundings and behaviours that operated through an ‘optical’ and distant

regime. For example, in the source images I '*made sense'* of the children's facial and bodily gestures according to pre-fixed ways of knowing the children (as cheeky, disrespectful, playful and curious). I described a young girl pulling her tongue out into the camera, suggesting that her tongue produced a powerful effect that inscribed certain behaviours and mannerisms and ways of knowing the child. Addressing the representational power of the image also operated as a route to recognise what might be known beyond such normative descriptions of the child. To dislocate those initial and powerful perceptions, I experimented with the high definition pixels in the source image to produce a 'distorted' view of the girl. My study still remained grounded in an interest in children's lives and wellbeing but from a much more decentred theoretical viewpoint. The child and her facial features and behaviours were no longer discernible. My arguments highlighted that an absence of the facial features and behaviours (the tongue stuck out) led to an automatic re-categorisation of the child, which contributed to a re-telling of a different kind (chapter 5). This alternative theorisation of the child moved beyond simply re-categorising the child within the trappings of language to understand what a body might become in new configurations with other matter and materials.

My thesis contributes to visual methodology and builds on the work of Hultman and Lenz Taguchi (2010), challenging the habitual human-centric gaze that visual researchers often default to when analysing educational video data. Contemporary visual research with children (de Freitas, 2015a; Palmer and de Freitas, 2016; Taguchi, Palmer and Gustafsson, 2016) has attempted to disrupt dominant notions that take humankind as the starting point and provide the human subject with a self-evident higher position above matter. However, my thesis moves on from such work and goes beyond understanding the children through dominant, human-centred rhetoric, in a move that produces more uncertainty and unfamiliarity through a new mode of engagement with the 'subject'. I ask, what new understandings might emerge if a child is no longer distinguished by language according to implicit presuppositions that produce subjects and command social obligation (MacLure, 2016).

My work addresses how the images of children operate through a new reconfiguration of a body that is free from those wider associations and discourses pertaining to gestures and bodily configurations (for instance the tongue). I use the digital capability

of the recording software to engage with a new set of sensations that are utile in dissolving the 'conventional' child in such school-based scenarios.

For example, by making the child figure unremarkable and insignificant within the source image, I draw on those other performative bodies of light and shade that animate the children's surroundings in new ways. What we witness in these experiments is the potential for the child to be part of a body, an assemblage that does not consist of organised and functional parts or forces (Colebrook, 2014:23), that re-positions the child as 'other' in new acts of mind and body. Such visual experiments are useful in recognising how 'normativity' positions certain bodies and minds over others, and is helpful in destabilising socially constructed perceptions of 'life' and 'being'.

I discuss, in chapter 4, the changes in research methodologies that have taken place are embedded in a context in which visual technologies have an increasing significance in children's lives (Rose, 2016; Stirling and Yamada-Rice, 2015). I recognised that studies were often invested in the position that knowledge came from the field through the process of collaboration, where children drew from their surroundings to make meaning. This interpretation has been useful to recognise the children in computer club working in collaboration to create meaning and operate the GoPro device to shed light on how their subjectivities might be imbricated and considered in relation to place, space and materials. However, much of the focus of child participatory video research resides in human-centricities, where the human participant remains in a privileged position over other materials, forces and entities that are at play, and the child is placed at the centre of meaning making. My work responds by decentring young people and disrupting foundational and human-centric manners of knowing to recognise 'other-than-human' and 'more-than-human' forces at play when children, cameras and researchers operate within a multi-directional space. However, this does not diminish the significance of the claims and concerns of children or displace attention elsewhere; but rather discloses the complexity of the shifting material-discursive events in which children are caught up. This may not be recognised more broadly in child participatory video research because of the continuing humanism that inheres in educational and research practices.

Recognising child participatory video research and the conceptual language of assemblage as creative playmates offers a way of reaching beyond the purely optical and representational power presented by video and photographic images of the children. By this I mean, we are able to sense subjectivities beyond sensori-motor and mechanical human movement that has contained certain social and developmental approaches to childhood. I have questioned what sticking to taken for granted discourses might do to our thinking and actions. If we remain contained in early sets of visual conventions that privilege the mechanical movements of bodies over other matter then we will continue to judge the performance of children according to 'arborescent systems' rather than 'rhizomatic' (Deleuze and Guattari, 2014) orientations of the world. I have been able to shine a light on how sticking to dominant visual practices has provided the means with which both to continue the containment of humankind and to be able to see how children's desires are subordinated, disciplined and chastised by a life led in conformity. As such, my interest in children's lives and wellbeing has remained at the forefront of the inquiry.

Video-blogging (vlogging): A performative-material-discursive approach to tracing multi animations of the world

Discussed in chapter 6, the practice of 'vlogging' (video blogging) became an intriguing way for the children to animate the world of computer club and much more could be said about the performative-material-discursive practices that unfolded within the filming event. For example, I noted how the children were mutually imbricated in shaping their immediate surroundings, yet simultaneously how their immediate surroundings and the wider socio-cultural practice associated with 'vlogging' equally animated the children. Each of these entities in the performative 'assemblage' (Deleuze and Guattari, 2014) was mutually constitutive in the recording of the video and more was at stake than just understanding the actions of the child and the context of the classroom. The thesis responds to the types of realities that might be invoked and materialised dependent upon the ontological standpoint taken and, I suggest, video-blogging with children is one route to understanding those mutual imbrications. What chapter 6 does is to read the video footage anew through the prism of a 'vlog-social-media-child-camera' assemblage. I have discussed many times how the children and I often found ourselves experimenting with the GoPro camera that

could be incorporated into the action in a number of ways using the body. The process was extremely organic; by this I mean, the process emerged from within the unfolding situation where the camera was worn on a chest and head harness, carried around and sometimes left disregarded on table tops. I recognised how the children favoured carrying the camera in order to film and the process seemed a more familiar and comfortable endeavour. The children provided verbal narration, accompanied by singing, dancing, clapping and laughing. It was the children's opportunity to animate their surroundings and simultaneously the surroundings and the material nature of the camera animated the children. I suggest, the process of 'vlogging' with children required prudence and attention to how knowledge might be created in artistic filming practices and how different experiences might come to expression through the lens of a GoPro camera.

Limitations

I do not claim that my post-qualitative inquiry is exhaustive, representative or generalizable as this would be counterproductive within my Deleuzian-inspired inquiry. However, I do claim that my contribution to the wider field of child participatory video research methodologies resides in my concentrated efforts to theorise the camera and the resultant video. Therefore, I am able to make potentially useful assertions in respect of the video data produced, in consideration of the fifteen children who participated in the research over the course of eighteen months in the one school setting. I suggest some of the research approaches might be 'replicated' or set into motion to generate different kinds of practices in different research assemblages that open multi-directional animations of children's worlds. Time to conduct the research, I suggest, has been my biggest ally to slow the research process down and re-work those moments of 'slippage', 're-direction', uncertainty and 'abandonment' within the video footage that created something new in the process.

I recognise that video and photographic practices with child participants are often imposed by aspects of censorship, governmental regulation, restricted access to technology and economy. As such, institutional and economic demands placed upon time, space and creativity may make similar experiments with research video practically impossible. Such approaches fall outside of measurable, accountable and target-driven regulatory frameworks that govern school institutions. I suggest the value of this type of transdisciplinary arts-based and speculative inquiry is yet to be

fully recognised as productive within the wider spheres of education as it threatens to unshackle the grips of 'clarity' and 'certainty' that the system functions upon. It is also entrenched in its own process of making-time that remains untimely (Manning, 2016) in itself. We must further explore how experimental research practices operate under speculative conditions, which requires space and time to consider what a text or video does and how it does it.

As I outlined earlier on in the chapter, it is not a practice of dismissing the world according to '*staunch practice'* versus '*anything goes'* (Youngblood Jackson, 2017). Indeed, knowledge has emerged in response to those problems and conundrums that were generative of a new conceptual framing that created questions, insights and curiosity, where I have remained deeply critical of the 'taken for granted' ways we understand children and childhood.

I have recognised the limitations of the research ethics regulatory frameworks operating within a post-qualitative inquiry. I have described the process of gaining the children's and parent's consent (chapter 2) as a tentative holding place of many tensions and worries. The children understood the consent paper work (appendix 1 & 2) as an important aspect of the research and their continued involvement meant signing for approval or not. I highlighted the discrepancies generated in the use of the term video data 'ownership' as human-centred and therefore ambiguous within a 'flattened' orientation of the world. I pondered, how do we respond to a sense of 'ownership' of the video content when there was no one privileged subject or 'thing' responsible for the 'owning'.

I am mindful of carrying out future video research with children in accounting for what care for other bodies (human and otherwise) might look like within an open-ended assemblage. Moving forward, in my future research I intend to carve out time to co-create an ethics of care process, where all the participants' contribute towards and are recognised in relation to their ongoing roles in the research. An ethics of care must also account for how we respond to those 'more-than-human' and 'other-than-human' encounters and why this is important. It is essential to include all the children's voices in regards to expectations, concerns and the value of video research to individual lives, despite children's intentions to be part of the research or not.

Why should we care?

I have asked myself, many times, what is the burning matter of concern that has emerged throughout the thesis? For example, what does it matter that a GoPro camera and the resultant video data becomes productive in a child's multiple animations of the world? I wonder to what extent using such speculative and decolonising human ontologies has produced further and alternative differentiations that will come to 'matter' for the children and the researcher involved. Simply put, does my work with cameras, children and video data bring to video research another ontology that is impossible to understand as an educational process that operates for the benefit of a single child or for a collective of children? This might not be answered immediately on these pages but as an emergent journey that is set into motion through the different kinds of practices in different research assemblages that open multi-directional animations of children's worlds.

I recognise that I have produced a version of the world that I have theorised and founded in post-qualitative paradigms that is equally constitutive of creating its own transcendental and hierarchical modes of 'thinking' and 'doing'. For example, in chapter 2, I positioned my post-qualitative research within the wider field of qualitative inquiry and, in doing so, I disqualified other ontologies and types of knowledge production (Taguchi, 2017) that were available to me at the time. Choosing one way of negotiating the world over another entailed a polarisation from the outset and, as such, this 'choice' warrants further ontological consideration within a 'post' inquiry.

For example, some might suggest selecting to experiment with Deleuzian-inspired ontology is a conceptual type of framing (Rautio and Jokinen, 2015) that unconsciously reflects my adult stand point of the world and, therefore, recognises the children according to specific modes of knowing. In this way, the research event (the people, places, objects, environments) still remain deciphered according to a set of practices and conceptual terminologies within my chosen ontological framework.

The limitations for this type of ontological inquiry resided in the ethical holes that remained invisible, as I didn't always see the holes in my own 'bucket' (Taguchi, 2017). This has become an ongoing ethical conundrum working with the absence of an individualised agent. For example, how do I productively write about the world whilst being part of it? Barad states that we are not 'in the world' to observe and replicate

but ‘of the world’ (2007:185). I have struggled with the pragmatics of such notions, recognising the limitations of detaching myself momentarily from the various animated worlds I perform within. However, persisting within this ‘messy’ conceptual space, I have become more attuned to my ongoing imbrications within the processes and performances of video research per se. By this I mean, I have recognised the importance of the ‘physicality’ of ‘doing’ the research and how this has become integral to the production and synthesis of the research outcomes. In support of these claims, I turn to Colebrook, who explains post-humanisms have ‘forgotten or actively seem to neglect that man himself is taken to be the only possible agent that can narrate the story about himself’ (2010:30). As such, my thesis has become a re-telling of my researcher self, as much as I have attempted to articulate the relations between the children, video, school and cameras. Barad’s post-human ethics emphasises that everything we do, think and say matters (Davies, 2014:4) and it is the entanglement and intra-action of phenomena itself, which produces an already ethical world based on our mutual entanglements (Barad, 2007; Braidotti, 2013). In my dealings with ‘otherness’, I have come to wonder, does an ontology that focusses on the relational and ever changing ‘assemblage’ of events draw attention away from children’s needs and adult responsibility? Aslanian asks whether a focus on an entangled articulation of the world;

> risks losing the contours of something important about children, that also matters, for example, their biological immaturity, vulnerability and dependence on adults for their healthy, physical and mental development. (2017:423)

What quandaries does this question produce? First of all, I suggest, such universal ethics will not be understood as generalisable by all, for example, this is dependent upon a person’s culture, religion, environment, beliefs, histories and experiences.

Second, the question falls short of asking how we *might* all live in different and alternative ways but with a care and responsibility for others (human and otherwise). As such, my study emphasises the importance of not thinking that we can know what is right and wrong before living our encounters. I suggest, beliefs and approaches to dealing with certainty and uncertainty have a large part to play within our research encounters.

I have derived an ethics that has emerged as a product of my encounters with the children and the technology, where 'ethics and ontology become one of the same', (Taguchi, 2010). I have conducted a study that contributes to practising an ethics of immanence and potentialities that go beyond dualities, judgement, hierarchy within educational practices, so that it becomes about challenging children and researchers to be inventive in collaboration and experimentation with video research practices per se.

A significant realisation was how unsettling the process of disrupting human-centredness, linear practices and the 'molar line' (status quo) can be. As I have suggested, loitering within this theoretical space was a dislocating endeavour both practically and theoretically. The response when describing my research to others outside of the field was often one of confusion, uncertainty and intrigue and in hindsight this might have been due to my somewhat baffling articulations of 'post' philosophies that I was still in the process of negotiating. Yet, in continuing to work on developing my research and teaching in conversation with post-qualitative inquiry, I have become much more mindful and attuned to the potentially unsettling nature of introducing such theories into my teaching practice and future research pursuits. This is because the emotive and visceral responses to such philosophies can be translated as negative and I have had to pay attention to the many embodied responses when working the limits of post-qualitative inquiry. I have forced myself to reside in the confusion and messiness of this 'uncertain' paradigm, yet, the process has been generative of new modes of thinking. Attuning to feelings of 'uncertainty' and 'slippage' has proved a powerful mechanism to provoke a new and emergent way of working within child participatory video research.

Future research

One of the aims of the thesis has been to disrupt common notions of child subjectivities within participatory video research and to offer an imagination of what might be possible using a post-qualitative and speculative lens. Dominant video research practices focus on the child's cognitive and physical development, race, class and gender as categories to inform policy and retain the hierarchical status quo in teaching and learning. In this sense, the knowledge produced from such practices continues to remain unquestioned in wider spheres. One of the aims of my research with children is for them to bring something new to the world and the use of a Deleuzian ontological

perspective has allowed me to theorise the multiple animations of the classroom through the lens of a GoPro camera.

However, there is a lot more to be said about how the digital GoPro camera and high definition video produced might provide a route to knowing different childhood realities. The next steps are to engage more deeply with child participatory video research and to further experiment with the different configurations of a GoPro camera to illuminate multiple animations of the world. Furthermore, I suggest such animations of the world might yield new understanding in further research with children's video-blogs through a speculative lens.

I am intrigued by ways that 'do-it-yourself' type videoing might provide multiple animations of children's worlds. I am interested in how the children, camera, spectator and the discursive practices associated with (video-blogging) are mutually imbricated in animating different realities. In moving forward with my research, I continue to recognise video phenomena beyond 'simple descriptions of what is real and right in the world' and instead address 'practices that happen within experience and that shape experience' (Rosiek, 2013:694).

Operationalising an ethics of care in the 'ontological turn'

One of the key questions that has emerged from doctoral study with child participants is how do we operationalise an 'ethics' of care in the 'ontological turn'?

For example, I balanced the practicalities and accountabilities of carrying out the filming process in a school whilst recognising the value of children's voices and rights to participate. This process created many competing tensions in the field and subsequently affected my relationships with the children. As such, the process left the children and I feeling at the 'fringes', in different ways. For example, I have attempted in my research to break through some of the socio-cultural norms that rendered child bodies in certain ways, whilst simultaneously having to adhere to strict practices and policies that governed such work with children. I am now left wondering how ethics could move beyond its focus upon a duty of care for research participants but also to consider a duty of care towards the researcher (Procter, 2014) struggling with some of the questions and tensions that emerge working with children in a speculative inquiry. Haraway (2007) explains that ontology is continuously in the making, in the process of becoming-with. In this sense, an ethics of care within speculative inquiry

might be considered as a collective inscription of bodies (human and otherwise). When we care, it is about forming relationships with other bodies. What is interesting to me is not who or what an ethics of care aims to include or represent but what it generates in those relationships with human and non-human others in those moments of uncertainty and ambiguity. My work, in this sense, aims to move beyond the figure of a lone thinker, and practise 'thinking with care' (de la Bellacasa, 2012) as a vital requisite of collective thinking in emergent and interdependent worlds. I wonder how such notions of 'becoming-with' (Haraway, 2007) might be implemented to recognise the act of caring in different human and non-human guises in my future child participatory video research.

(in) conclusion

In the introduction to this thesis, I expressed the hope that my research might make modest contributions to the project of child participatory video research through the prism of a 'flattened' orientation of the world. I have resisted the language of generalisability and best practice and avoided making grand claims for my study as an example of unproblematic (or less problematic) child participatory video research. Instead, I use the closing paragraphs to articulate the inquiry's strengths as a holding place of potential and to provide a final response to the over-arching question '*What are the methodological potentials of a GoPro camera in a school-based computer club'?* The thesis' substance resides in conceptual spaces whereby I present moments of indiscernibility between ideas, video data and practices that I have re-engaged with to invoke temporary pauses before I became swept back up with the research process. I have emphasised time as a commodity that has enabled me to experiment and re-consider the video data through a new methodological prism. I have resided in a conceptual space beyond thinking with familiar representational practices, that is, where the video data is used as a vehicle to assess the children's realities from a privileged researcher standpoint. Resisting such practices has enabled me to attune to how I understand myself as a researcher and how I have in the past quilted myself into a position, whereby I remained detained by 'binary systems of staunch procedures versus anything goes' (Jackson, 2017:666). The over-arching research question has allowed me to experiment and I no longer feel detained by the binary systems that Jackson describes to negotiate the world through a specific catalogue of terminologies and practices. Instead, the PhD has provided me with time

and freedom to play within an alternative conceptual space. I present this space as productive of its own transcendental modes of 'thinking' and 'doing' and generative of its own time and rhythms. I have disqualified other ontologies and types of knowledge production to generate new understandings through an alternative manner of engagement. Indeed, my work has not been a matter of 'anything goes', quite the contrary, it has been a polarising endeavour from the start and one where I have deeply engaged with the problems of ethics, care and responsibility for others whilst working in the realms of a post-qualitative inquiry. I chose to experiment with human-centric terminologies to 'push' against, lean on and re-work. As such, those familiarities in research design have become operative and useful within the ever-widening child-camera 'assemblage'. I acknowledge that it has not been the case of turning my back on 'staunch' practices and terminologies, but how familiar modes of engagement might operate alongside new concepts, ideas and methods that emerge in moments of careful experimentation. The thesis has led me to attend to child participatory video research through a new ontological prism, wherein I deeply engage and begin to re-imagine my habitual, safe behaviours as a researcher. Instead of distinct and separable positions, I begin to re-imagine and understand child subjectivities and classroom spaces without boundaries and the GoPro camera draws on the spaces of 'fantasy' and 'reality', each seeming to become entwined within each other's performative spaces. The most significant moments have been when I have come to recognise my performance as a visual researcher that are entangled within the wider assemblage, shifting the power dynamics and re-routing the linear path. I wonder how 'sliding' moments like this become critical in how I think about what I might become as a visual researcher and what the children might become in our mutual entanglements with digital technology in the future.

Appendices

Appendix 1: Parent consent form and information letter

Appendix 2: Child information sheet and consent form

Appendix 3: MMU Ethical approval forms

Appendix 4: Image of a GoPro camera

Appendix 5: Image of child demonstrating how to wear the chest and head camera harness

Appendix 1:

Parent Consent Form

PhD Research

Hi, my name is Lucy Caton and I am a PhD research student at Manchester Metropolitan University. I am currently conducting research looking at the way young children experiment with digital technology, and how this might support their learning in the future. I would appreciate your consent to take video images of your child whilst they are engaging in out of school 'computer club'. The video footage will enable me to think about the learning that emerges when young children takes part in the activities. Any footage taken will be used solely for the purpose of this research, will be stored safely and will not be shared with any outside organizations.

Thank you for your cooperation. It is greatly appreciated.

I am willing for my child to be filmed whilst participating in Computer Club.

Print name:

Sign:

I am willing for my child's image to be used as part of hard copy and online academic publications, presentations and conferences

Print Name:

Sign:

If you have any questions concerning this work please do not hesitate to contact me at lucy.caton2@stu.mmu.ac.uk / lucycaton20@gmail.com

Appendix 2:

Dear Student

My name is Lucy Caton and I am a PhD researcher at Manchester Met University. It is important for you to understand why the research is being done and what it will involve. Please take time to read the attached information sheet carefully and discuss it with your parents and others if you wish. This information covers the most commonly asked questions, but please ask or contact me or your teacher if there is anything that is not clear or if you would like more information. Please take time to decide whether or not you wish to take part.

Thank you for your time and co-operation.

Yours sincerely

Lucy Caton

Education and Social Research Institute

Manchester Metropolitan University.Lucy.caton2@stu.mmu.ac.uk

Student Information Sheet:

The Aims of the Research:

1. To explore how children between the ages of 7 - 11, play and experiment with digital technology to learn new things.

2. To investigate what new digital worlds, innovations and characters can be thought, when children come together to learn in 'computer club'.

3. To explore new and exciting ways of thinking with digital technology

Why have I been asked to take part?

St Paul's CE Primary School has been invited to participate in the research as you have an exciting Computer Club that I would love to be part of. The research will provide a rich insight into how you engage with digital technology and learn new things. The results will be used to contribute to a new and emerging field of research within the area of digital technology and children's learning. I hope to publish the research within academic journals and share the experience with others who are interested and want to make coding in schools more fun.

Do I have to take part?

It is up to you to decide whether or not you take part. If you do decide to take part you are still free to withdraw at any time and without giving a reason.

What will I have to do?

You simply come along to the weekly Computer Club after class and continue to enjoy taking part in the activities. I will be present at each of the sessions to help out and watch you all have fun.

Will my name appear in any written reports of this study?

All information that is collected about you during the course of the study will be kept strictly confidential. Any information about you, which leaves the Manchester Metropolitan University, will have your name removed so that you cannot be recognised. When the results of the research are published direct quotes may be used. These will all be anonymised but you can choose to have your comments excluded from this part of the study by indicating this on the consent form.

Student Consent Form

Title of project:

To explore how children use innovation to create new ideas with digital technology in computer club.

Principal Researchers: Lucy Caton

I have read the student information sheet and I am aware of the purpose of this research study. I am willing to be part of this study and have been given the researchers details.

My signature certifies that I have decided to participate having read and understood the information given and had an opportunity to ask questions.

I ……give my permission for my data to be used as part of this study and understand that I can withdraw at any time and my data will be destroyed.

Signature……Date……..

Direct quotes

I ……give my permission for direct quotes from my interview to be used as part of this study.

Signature……Date……..

I have explained the nature of the study to the subject and in my opinion the subject is voluntarily and knowingly giving informed consent to participate.

Principal researcher/National coordinator:

Signature……Date……..

Appendix 3:

APPLICATION FOR ETHICAL APPROVAL

Introduction

All university activity must be reviewed for ethical approval. In particular, all undergraduate, postgraduate and staff research work, projects and taught programmes must obtain approval from the Academic Ethics committee.

Application Procedure

The form should be completed legibly (preferably typed) and, so far as possible, in a way that would enable a layperson to understand the aims and methods of the research. Every relevant section should be completed. Applicants should also include a copy of any proposed advert, information sheet, consent form and, if relevant, any questionnaire being used. The Principal Investigator should sign the application form. Supporting documents, together with one copy of the full protocol should be sent to the Faculty/Campus Research Group Officer.

Your application will require external ethical approval by an NHS Research Ethics Committee if your research involves staff, patients or premises of the NHS (see guidance notes)

Work with children and vulnerable adults
You will be required to have an Enhanced CRB Disclosure, if your work involves children or vulnerable adults.

The Academic Ethics Committee will respond as soon as possible, and where appropriate, will operate a process of expedited review.

Applications that require approval by an NHS Research Ethics Committee or a Criminal Disclosure will take longer.

1. Details of Applicants
1.1. Name of applicant (Principal Investigator):

Lucy Caton	
Telephone Number: 07739314371	
Email address: Lucycaton20@gmail.com	
Status:	Postgraduate Student Research
Department/School/Other Unit: ESRI	
Programme of study (if applicable):	
Name of supervisor/Line manager: Professor Cathy Lewin	
1.2. Co-Workers and their role in the project: (e.g. students, external collaborators, etc.)	
Name:	Name:
Telephone Number:	Telephone Number:
Role:	Role:
Email Address:	Email Address:

2. Details of the Project

2.1. Title:

How new subjects and capacities are produced when children, coding and computers 'plug into' one another.

2.2. Description of the Project: (please outline the background and the purpose of the research project, 250 words max)

The research hopes to capture a 'snap shot' in situ of a small group of children between 7 -11 years of age, participating within an 'out of school' computer club. There are eleven children in total and one teacher present. Using poststructuralist methodologies, I hope to contribute more broadly to a growing body of knowledge interested in how new subjects with new capacities are being produced through the shift to 'computational thinking' with computer coding. I hope to start a pilot study after the Easter Term 2016, following on from this the research will commence September 2016.

2.3. Describe what type of study this is (e.g. qualitative or quantitative; also indicate how the data will be collected and analysed). Additional sheets may be attached.

The research is situated within a post-structural ethnography, maintaining an experimental attitude towards qualitative data collection methods. I hope to extract and animate the multiplicities that emerge from computational thinking, and how new subjects with new capacities are being produced. I will collect qualitative data using video observation, semi structured interviews and researcher field notes. I hope to reduce any impact on the participants by installing a continuous recording camera on a discrete static tripod. As a participant researcher, I will log specific 'episodes' of interest and follow up with semi structured interviews at a later date. The qualitative interviews will serve to increase understanding of the specific 'episodes' and in opposition reduce researcher bias and incorrect interpretation. The data will also include coding artefacts, which I plan to discuss as part of the interview process. The findings do not aim to be generalised and regarded as true to all British Children. However, the depth of the study with fewer participants will provide an opportunity to engage in a deeper exploration, not always afforded in practice due to time and resource constraints.

2.4. Are you going to use a questionnaire?

NO

2.5. Start Date / Duration of project: sept 2015 – sept 2018

2.6. Location of where the project and data collection will take place: St Pauls Primary school, Astley Bridge, Bolton, Greater Manchester

2.7. Nature/Source of funding
ESRI

2.8. Are there any regulatory requirements?

NO

3. Details of Participants

3.1. How many?
10

3.2. Age:
7 – 11 years of age

3.3. Sex: Female and Male

3.4. How will they be recruited? (Attach a copy of any proposed advertisement)
Volunteering to join after school club

3.5. Status of participants: (e.g. students, public, colleagues, children, hospital patients, prisoners, including young offenders, participants with mental illness or learning difficulties.)

Primary Pupils

3.6. Inclusion and exclusion from the project: (indicate the criteria to be applied).

All members of after school club will be included, subject to consent forms.

3.7. Payment to volunteers: (indicate any sums to be paid to volunteers).

N/A

3.8. Study information:
Have you provided a study information sheet for the participants?

Yes – see attached

3.9. Consent:
(A written consent form for the study participants MUST be provided in all cases, unless the research is a questionnaire.)
Have you produced a written consent form for the participants to sign for your records?
YES (Please attach a copy)

.

4. Risks and Hazards

4.1. Are there any risks to the researcher and/or participants?
(Give details of the procedures and processes to be undertaken, e.g., if the researcher is a lone-worker.)

To reduce any risk – I will conduct all one to one interviews in an open class room next to the main computer room, where the rest of the participants are working and there can be a free flow of movement between the two rooms.

At all times the teacher will be present at the out of school computer club .

As an active participant, children may seek help and advice, I confirm that I will be working alongside the children in a mentoring capacity. However, any pastoral needs or requests to leave the school premises will be directed to the teacher in charge. The children will be made aware of this.

No sensitive questions……

4.2. State precautions to minimise the risks and possible adverse events:

I will conduct the one to one interviews in a room with an open door, to minimise risk of false accusations. The interview room will be a class room located off from the main computer room where the rest of the participants will be located.

4.3. What discomfort (physical or psychological) danger or interference with normal activities might be suffered by the researcher and/or participant(s)? State precautions which will be taken to minimise them:

N/A

5. Ethical Issues

5.1. Please describe any ethical issues raised and how you intend to address these:

Conducting ethnographic research with child participants over the course of one academic year will carry ethical issues with it. Within my research design, I have considered my relationship with the children and how this will potentially develop as I engage with them within their surroundings. From the outset I wish to maintain an open and transparent relationship with all participants, ensuring a respectful and inclusive environment for the children to have a positive experience. I will collect data using the method of unstructured video observations, I am conscious of entering and invading a child's space, having this privilege to construct meaning from their experiences over an extended period of time. I must be careful not to misinterpret meaning and events and prefix my own personal notions and ideas onto what

emerges. I am therefore, using semi structured interviews to discuss certain 'episodes within the video footage' that I will log as areas of interest. Using the semi structured interviews in this manner, will allow for the child to account for their experiences and thoughts first hand, reducing the bias. The digital artefacts the child produces as part of the coding / programming activities will be discussed with the child, to ensure that they are providing their own interpretation and ideas.

I will seek consent to use video and oral footage of the children within research presentations and academic write – up's. I will offer participants full anonymity via pixilation of their faces if they wish.

Extended engagement in the research setting is demanding of the social skills of the researcher, even where circumstances do not change, especially as consent to initial access, may not imply continuing approval. Consent and access agreements may need to be renegotiated

6. Safeguards/Procedural Compliance

6.1. Confidentiality:

6.1.1. Indicate what steps will be taken to safeguard the confidentiality of participant records. If the data is to be computerised, it will be necessary to ensure compliance with the requirements of the Data Protection Act 1998.

Anonymity for the school setting and all child participants will be outlined within the consent form and information sheet. Anonymity when re-presenting visual and oral data in research presentations and write up's will be provided along with ensuring that participants of all ages are informed about possible outcomes and dissemination of the study.

To empower the children within the data collection processes, they will be encouraged to create their own pseudonyms and sign a copy of the consent form. Children will be made aware that they can opt out of the research at any point if they feel unhappy.

I will store all video recorded data onto my personal hard drive computer – I have pass word protection on my personal computer. I will also back the video data onto a second external hard drive to ensure that I have accounted for hardware problems and breakages. The audio and visual recordings will be viewed by supervisors (s) and the school if they make a request.

6.1.2. If you are intending to make any kind of audio or visual recordings of the participants, please answer the following questions:

6.1.2.1. How long will the recordings be retained and how will they be stored?
The recordings will be made from the start of academic year 2016 – 2017 – They will be kept on my computer hard drive until the end of the PhD – sept 2018. To Keep for a further two years to write academic articles

6.1.2.2. How will they be destroyed at the end of the project?

I will delete all data from the hard drives and any copies that I have made will be destroyed.

6.1.2.3. What further use, if any, do you intend to make of the recordings?

No further use will be made of the recordings as I understand at the present time.

6.2. The Human Tissue Act

The Human Tissue Act came into force in November 2004, and requires appropriate consent for, and regulates the removal, storage and use of all human tissue.

6.2.1. Does your project involve taking tissue samples, e.g., blood, urine, hair etc., from human subjects?

NO

6.2.2. Will this be discarded when the project is terminated?

If NO – Explain how the samples will be placed into a tissue bank under the Human Tissue Act regulations:

6.3. Notification of Adverse Events (e.g., negative reaction, counsellor, etc.):
(Indicate precautions taken to avoid adverse reactions.)

Please state the processes/procedures in place to respond to possible adverse reactions.

n/a

In the case of clinical research, you will need to abide by specific guidance. This may include notification to GP and ethics committee. Please seek guidance for up to date advice, e.g., see the NRES website at http://www.nres.npsa.nhs.uk/

SIGNATURE OF PRINCIPAL INVESTIGATOR:	Date
SIGNATURE OF FACULTY'S HEAD OF ETHICS:	Date:

Checklist of attachments needed:

1. Participant consent form
2. Participant information sheet
3. Full protocol
4. Advertising details
5. NHS Approval Letter (where appropriate)
6. Other evidence of ethical approval (e.g., another University Ethics Committee approval)

Appendix 4: GoPro camera

Appendix 5: Image of child demonstrating how to wear the Chest and Head camera harness

References

Aitken, S. C. (2001) *Geographies of young people - The morally contested spaces of identity*. London: Routledge.

Alaimo, S. and Hekman, S. (2008) *Material Feminisms.* Bloomington, IN: Indiana University Press.

Aslanian, T. K. (2017) 'Recycling Piaget: Posthumanism and making children's knowledge matter.' *Educational Philosophy and Theory*, 50(4) pp. 417-427.

Bennett, J. (2001) *The Enchantment of Modern Life, Attachments, Crossings and Ethics.* New Jersey: Princeton University Press.

Bennett, J. (2010) *Vibrant Matter: a political ecology of things.* Durham, N.C: Duke University Press.

Bergson, H. (1990) *Matter and Memory.* Translated by N. M. Paul & W. S. Palmer. Massachusetts: Zone Books.

Bergson, H. (1998) *Creative Evolution.* Translated by A. Mitchell. New York: Dover.

Braidotti, R. (2006) 'Posthuman, all too human: Towards a new process ontology.' *Theory, Culture and Society*, 23(7-8) pp. 197-208.

Braidotti, R. (2013) *Metamorphoses: Towards a materialist theory of becoming.* Malden, USA: Polity Books.

Britzman, D. P. (1995) ‘The question of belief': Writing post-structural ethnography.' *International Journal of Qualitative Studies in Education*, 8(3) pp. 229-238.

Buchanan, I. (2004) 'Introduction.' *In* Buchanan, I. and Swiboda, M. (eds.) *Deleuze and Music*. Edinburgh, Scotland: Edinburgh University Press, pp. 1-19.

Buchanan, I. (2015) 'Assemblage Theory and its Discontents.' *Deleuze Studies*, 9(3) pp. 382-392.

Burnett, C., Merchant, G., Pahl, K. and Roswell, J. (2014) 'The (im)materiality of literacy: the significance of subjectivity to new literacies research.' *Discourse: Studies in the Cultural Politics of Education*, 35(1) pp. 90-103.

Cartwright, L. (1995) *Screening the body: Tracing Medicine's Visual Culture.* Minnesota: University of Minnesota Press.

Caton, L. and Hackett, A. (accepted) 'Head mounted, chest mounted, tripod or roaming? Ontological possibilities for doing visual research with children and GoPro cameras.' *In* Kucirkova, N., Rowsell, J. and Fallon, G. (eds.) *The Routledge International Handbook of Playing and Learning with Technology in Early Childhood*. Oxon: Routledge.

Christensen, P. and James, A. (2000) *Research with Children - Perspectives and Practices.* London: Falmer Press.

Clifford, C. (1990) 'Notes on (field) notes.' *In* Sanjek, R. (ed.) *Field notes: The Makings of Anthropology*. London: Cornell University Press, pp. 47-71.

Clifford, J. (1986) 'On Ethnographic Allegory.' *In* Clifford, J. and Marcus, G. E. (eds.) *Writing Culture: the Poetics and Politics of Ethnography*. London: University of Carolina Press, p. 98.

Colebrook, C. (2001) *Gilles Deleuze.* New York: Routledge.

Colebrook, C. (2006) *Deleuze: a guide for the perplexed.* London: Continuum.

Colebrook, C. (2014a) *Death of the Post-Human: Essays on extinction, Vol 1.* Michigan: Open Humanities Press.

Colebrook, C. (2014b) *Sex after Life: Essays on extinction, Vol 2.* Michigan: Open Humanities Press.

Colebrook, C. (2017) 'What is this thing called Education?' *Qualitative Inquiry*, 23(9) pp. 649-655.

Colman, F. (2011) *Deleuze and Cinema: the Film Concepts.* Oxford: Berg, Bloomsbury Publishing.

Coole, D. and Frost, S. (2010) *New Materialisms: Ontology, agency and politics.* Durham, NC: Duke University Press.

Cutter-Mackenzie, A., Edwards, S. and Widdop Quinton, H. (2015) 'Child-framed video research methodologies: issues, possibilities and challenges for researching with children.' *Children's Geographies*, 13(3) pp. 343-356.

Dahlberg, G., Moss, P. and Pence, A. (2013) *Beyond Quality in Early Childhood Education and Care: Languages of Evaluation.* Abingdon, Oxon: Routledge.

Davies, B. (2016) 'Emergent Listening.' *In* Denzin, N. and Giardina, M. (eds.) *Qualitative Inquiry Through a Critical Lens*. New York, NY: Routledge.

Davies, B. (2018) 'Ethics and new materialism: a brief genealogy of the 'post' philosophies in the social sciences.' *Discourse: Studies in the Cultural Politics of Education*, 39(1) pp. 113-127.

De-Bolla, P. (2003) *Art Matters.* United States of America: Harvard University Press.

de Freitas, E. (2012) 'The Classroom as Rhizome: New Strategies for Diagramming Knotted Interactions.' *Qualitative Inquiry*, 18(7) pp. 557-570.

de Freitas, E. (2015) 'Classroom Video Data and the Time-Image: An-Archiving the Student Body.' *Deleuze Studies*, 9(3) pp. 318-336.

de Freitas, E. (2016) 'The moving image in education research: Reassembling the body in classroom video data.' *International Journal of Qualitative Studies in Education*, 29(4) pp. 553-572.

de Freitas, E. and Palmer, A. (2015) 'How scientific concepts come to matter in early childhood curriculum: rethinking the concept of force.' *Cultural Studies of Scientific Education*, 11 pp. 1201-1222.

de la Bellacasa, M. P. (2009) 'Touching Technologies, Touching Vision: The reclaiming of sensorial experience and the politics of speculative thinking.' *Subjectivity*, 28(1) pp. 297-315.

de la Bellacasa, M. P. (2011) 'Matters of Care in Techno-Science: Assembling neglected things.' *Social Studies of Science*, 41(1) pp. 85-106.

de la Bellacasa, M. P. (2012) "Nothing Comes Without its Worlds': Thinking with Care.' *The Sociological Review*, 60(2) pp. 197-216.

Deleuze, G. (1986) *Cinema 1: the movement-image.* London: Athlone Press.

Deleuze, G. (1989) *Cinema 2: The Time Image.* London, New York: Bloomsbury Academic.

Deleuze, G. (1992) 'Postscript on the Societies of Control.' *October*, 59 pp. 3-7.

Deleuze, G. (2007) *Dialogues 2: Revised Edition, Gilles Deleuze and Claire Parnet.* New York: University Columbia Press.

Deleuze, G. and Guattari, F. (1987) *A Thousand Plateaus: Capitalism and Schizophrenia*. Translated by B. Massumi. Minneapolis: University of Minnesota Press

Deleuze, G. and Guattari, F. (2014) *A Thousand Plateaus.* London, New York: Bloomsbury Academic.

Denzin, N. and Lincoln, Y. (1994) *Handbook of Qualitative Research.* Los Angeles, CA: Sage.

Derrida, J. (1976) *Of Grammatology.* 40th Anniversary Edition. Translated by G. Spivak. Baltimore: John Hopkins University Press.

Derrida, J. (1982) 'Differance.' Translated by A. Bass. *In* Derrida, J. (ed.) *Margins of Philosophy*. Chicago: The University of Chicago Press.

Doanne, M. A. (2002) *The Emergence of Cinematic Time, Modernity, Contingency, The Archive.* Cambridge: Harvard University Press.

Ellis, J. C. and McLane, B. A. (2005) *A new history of documentary film.* New York: The Continuum International Publishing Group Inc.

Ellsworth, E. (2005) *Places of learning: Media, Architecture, Pedagogy.* London: Routledge.

Elwick, S. (2015) ''Baby-cam' and researching with infants: Viewer, image and (not) knowing.' *Contemporary Issues in Early Childhood*, 16(4) pp. 322-338.

Erikson, F. (2006) 'Definition and analysis of data from video tape: Some research procedures and their rationales.' *In* Green, J. L., Camilli, G. and Elmore, P. (eds.) *Handbook of complementary methods in education research*. Mahwah, NJ: Erlbaum.

Erikson, F. (2011) 'Uses of video in social research: a brief history.' *International Journal of Social Research Methodology*, 14(3) pp. 179-189.

Felix, G. (1995) *Chaosmosis an ethico-aesthetic paradigm.* Sydney, Australia: Power Publications.

Flewitt, R. (2006) 'Using video to investigate preschool classroom interactions: education research assumptions and methodological practices.' *Visual*

Communication, 5(1) pp. 25-50.

Flewitt, R., Messer, D. and Kucirkova, N. (2015) 'New directions for early literacy in a digital age: The iPad.' *Journal of Early Childhood Literacy*, 15(3) pp. 289-310.

Gabi, J. (2013) *Rhizomatic cartographies of belonging and identity within early years education.* Manchester Metropolitan University.

Gallacher, L & Gallagher, M. (2008) Methdological immaturity in childhood research? Thinking through participatory methods. *Childhood*, 15 (4) pp. 499 - 516

Genosko, G. (1997) 'A Bestiary of Territoriality and Expression: Poster Fish, Bower Birds, and Spiny Lobsters.' *Canadian Review of Comparative Literature*, 24(3) pp. 529-542.

Glowczewski, B. (2014) 'Beyond the frames of film and aboriginal field work.' *In* Schneider, A. and Pasqualino, C. (eds.) *Experimental film and anthropology*. London: Bloomsbury Academic, pp. 147-164.

Goldman, R., Pea, R., Barron, B. and Derry, S. J. (2007) *Video Research in the Learning Sciences.* Oxon: Routledge.

Gregg, M. and Seigworth, G. J. (2010) *The affect theory reader.* Durham, N.C: Duke University Press.

Grosz, E. A. (1995) *Space, time, and perversion: Essays on the politics of bodies.* London: Routledge.

Hackett, A. (2014) 'Zigging and Zooming all over the place: Young Children's meaning-making and movement in the museum.' *Journal of Early Childhood Literacy*, 14(1) pp. 5-27.

Hackett, A. (2016) 'Young Children as Wayfarers: Learning about place by moving through it.' *Children and Society*, 30 pp. 169-179.

Hackett, A. and Somerville, M. (2017) 'Post-human literacies: Young children moving in time, place and more-than-human worlds.' *Journal of Early Childhood Literacy*, 17(3) pp. 374-391.

Hackett, A., Pool, S., Rowell, J. and Aghajan, B. (2015) 'Seen and unseen: using video data in ethnographic fieldwork.' *Qualitative Research Journal*, 15(4) pp. 430-444.

Hadfield, M. and Haw, K. (2012) 'Video: Modalities and Methodologies.' *International Journal of Research and Method in Education*, 35(3) pp. 311-324.

Hall, M., Pahl, K. and Pool, S. (2015) 'Visual digital methodologies with children and young people: Perspectives from the field.' *In* Stirling, E. and Yamada-Rice, D. (eds.) *Visual Methods with Children and Young people: Academics and Visual Industries in Dialogue*. Basingstoke: Palgrave Macmillan.

Hall, R. (2000) 'Video recording as theory.' *In* Kelly, A. E. and Lesh, R. A. (eds.) *Handbook of research design in mathematics and science education*. Mahwahm, NJ: Lawrence Erlbaum Associates.

Hanhardt, J. G. (1976) *Video / Television Space: Video Art: An Anthology.* New York: The Raindance Foundation.

Haraway, D. (1988) 'Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective.' *Feminist Studies*, 14(3) pp. 575-599.

Haraway, D. (2003) *The Companion Species Manifesto, Dogs, People and Significant Otherness.* Chicago: Prickly Paradigm Press.

Haraway, D. (2006) 'A Cyborg Manifesto, Science, Technology, and Socialist Feminism in the late Twentieth Century.' *In* Stryker, S. and Whittle, S. (eds.) *The Transgender Studies Reader*. New York, NY: Routledge,

Haraway, D. (2016) *Staying with the Trouble: Making kin in the Chthulucene.* London: Duke University Press.

Harrison, M. (2014) *Travelling through Written Spaces: a nomadic enquiry into the writing of student teachers.* Manchester Metropolitan University.

Harwood, D. and Collier, D. (2018) ''Talk into my GoPro, I'm making a movie': Using digital ethnographic methods to explore children's socio-material experiences in the woods.' *In* Kucirkova, N., Rowsell, J. and Fallon, G. (eds.) *The Routledge International Handbook of Playing and Learning in Early Childhood*. Oxon: Routledge.

Hayes, M. T. (2007) 'Overwhelmed by the image: The role of aesthetics in ethnographic film-making.' *In* Goldman, R., Pea, R., Barron, B. and Derry, S. J. (eds.) *Video Research in the learning sciences*. Mahwah: Lawrence Erlbaum Associates, pp. 67-76.

Hickey-Moody, A. (2013a) *Youth, Arts, and Education: Reassembling Subjectivity through Affect.* Oxon: Routledge.

Hickey-Moody, A. (2013b) 'Deleuze's Children.' *Educational Philosophy and Theory*, 45(3) pp. 272-286.

Hickey-Moody, A. and Malins, P. (2008) *Deleuzian Encounters: Studies in Contemporary Social Issues.* Palgrave Macmillan.

Holmes, R. (2012) 'A fantastic decomposition: Unsettling the fury of having to wait.' *Qualitative Inquiry*, 18(7) pp. 544-556.

Holmes, R. and Jones, L. (2013) 'Flesh, wax, horse skin and hair: the many intensities of data.' *Cultural Studies ↔ Critical Methodologies*, 13(4) pp. 357-372.

Horton, J. and Kraftl, P. (2006) 'What else? some more ways of thinking and doing ‘Children's Geographies’.' *Children's Geographies*, 4(1) pp. 69-95.

Hughes, J. (2012) *SAGE visual methods.* London: SAGE.

Hultman, K. and Lenz Taguchi, H. (2010) 'Challenging anthropocentric analysis of visual data: a relational materialist methodological approach to educational research.' *International Journal of Qualitative Studies in Education*, 23(5) pp. 525-542.

Ingold, T. (2007) *Lines - A Brief History.* Oxon: Routledge.

Ingold, T. (2008) 'Bindings against boundaries: entanglements of life in an open world.' *Environment and Planning*, 40 pp. 1796-1810.

Ingold, T. (2011) *Being Alive: Essays on Movement, Knowledge and Description.* Oxon: Routledge.

Ingold, T. (2013) *Making, Anthropology, Archaeology, Art and Architecture.* Oxon, UK: Routledge.

Ingold, T. (2014) 'Why not Ethnography.' *Journal of Ethnographic Theory*, 4(1) pp. 383-395.

Ingold, T. and Palsson, G. (2013) *Bio Social Becomings - Integrating Social and Biological Anthropology.* New York: Cambridge University Press.

Ivarsson, J. (2003) 'Kids in Zen: computer-supported learning environments and illusory intersubjectivity.' *Education, Communication & Information*, 3(3) pp. 383-402.

Ivinson, G. and Renold, E. (2016) 'Girls, Camera, (Intra) Action: Mapping Post-human Possibilities in a Diffractive Analysis of Camera-Girl Assemblages in Research on Gender, Corporeality and Place.' *In* Taylor, C. and Hughes, C. (eds.) *Post-human Research practices in Education*. Basingstoke: Palgrave Macmillan, pp. 168-185.

Jackson, A. Y. (2010) 'Deleuze and the girl.' *International Journal of Qualitative Studies in Education*, 23 pp. 579-587.

Jackson, A. Y. (2016) 'An Ontology of a Blackflip.' *Cultural Studies Critical Methodologies*, 16(2).

Jackson, A. Y. (2017) 'Thinking without Method.' *Qualitative Inquiry*, 23(9) pp. 666-674.

Jackson, A. Y. and Mazzei, L. A. (2012) *Thinking with theory in qualitative research: viewing data across multiple perspectives (1st Ed.).* Abingdon, Oxon;
New York, NY: Routledge.

James, A., Jenks, C. and Prout, A. (1998) *Theorising Childhood.* Cambridge: Polity Press.

Jewitt, C. (2012) *'An introduction for using video for research*.' Presentation at National Centre for Research Methods, London.

Jones, E. (1955) *The life and works of Sigmund Freud, 1856 - 1900, The formative years and the great discoveries* (Vol. 2). New York: Basic Books.

Jones, L., Holmes, R., MacRae, C. and Maclure, M. (2010) 'Documenting classroom life: how can I write about what I am seeing?' *Qualitative Research*, 10(4) pp. 479-491.

Jones, L., MacLure, M., Holmes, R. and MacRae, C. (2012) 'Children and objects: affection and infection.' *Early Years*, 32(1) pp. 49-60.

Kennedy, B. M. (2002) *Deleuze and cinema: the aesthetics of sensation.* Edinburgh: Edinburgh University Press.

Kindon, S. (2003) 'Participatory video in geographic research: a feminist practice of looking?' *Area*, 35(2) pp. 142-153.

Kohn, E. (2013) *How Forests Think: Towards an anthropology beyond the human.* Los Angeles: Oxford University Press.

Koro-Ljungberg, M. and MacLure, M. (2013) 'Provocations, Re-Un-Visions, Death, and Other Possibilities of "Data".' *Cultural Studies ↔ Critical Methodologies*, 13(4) pp. 219-222.

Kraftl, P. (2013) 'Beyond 'voice', beyond 'agency', beyond 'politics'? Hybrid childhoods and some critical reflections on children's emotional geographies.' *Emotion, Space and Society*, 9 pp. 13-23.

Kuby, C., Gutshall Rucker, T. and Kirchhofer, J. (2015) 'Go Be a Writer': Intra-activity with materials, time and space in literacy learning.' *Journal of Early Childhood Literacy*, 15(3) pp. 1-26.

Lather, P. (2006) 'Paradigm Proliferation as a good thing to think with: Teaching research in education as a wild profusion.' *International Journal of Qualitative Studies in Education*, 19(1) pp. 35-57.

Lather, P. (2013) ''Methodology-21': What Do We Do in the Afterward?' *International Journal of Qualitative Studies in Education*, 26 pp. 634-645.

Lather, P. (2016) 'Top Ten + List: (Re) thinking Ontology in (Post) Qualitative Research.' *Cultural Studies Critical Methodologies*, 16(2) pp. 125-131.

Lather, P. and St. Pierre, E. (2013) 'Post-Qualitative' research', *International Journal of Qualitative Studies in Education*, 26(6) pp. 629-633.

Latour, B. (2005) *Reassembling the Social: An introduction to Actor-Network-Theory.* Oxford: Oxford University Press.

Law, J. (2004) 'And if the global were small and non-coherent? Method, Complexity, and the baroque.' *Environment and Planning: Society and Space*, 22(1) pp. 3-11.

Lecercle, J. J. (2002) 'Another Philosophy of Language: Machines, Assemblages, Minority.' *In* Lecercle, J. J. (ed.) *Deleuze and Language*. London: Palgrave Macmillan, pp. 174-201.

Leeuwen, T. V. and Jewitt, C. (2001) *Handbook of Visual Analysis.* London: Sage.

Lenz-Taguchi, H. (2010) *Going beyond the theory/practice divide in early childhood education: introducing an intra-active pedagogy. Contesting early childhood*. London: Routledge.

Lenz Taguchi, H. and Adams St. Pierre, E. (2017) 'Using Concept as Methods in Educational and Social Science Inquiry.' *Qualitative Inquiry*, 23(9) pp. 643-648.

Lenz Taguchi, H., Palmer, A. and Gustaffson, L. (2016) 'Individuating 'sparks' and 'flickers' of 'a life' in dance practices with preschoolers: the 'monstrous child' of Colebrook's Queer Vitalism.' *Discourse: Studies in the Cultural Politics of Education*, 37(5) pp. 705-716.

Lomax, H. and Casey, N. (1998) 'Recording Social Life: Reflexivity and Video Methodology.' *Sociological Research Online*, 3(2).

Lomax, H., Fink, J., Singh, N. and High, C. (2011) 'The politics of performance: methodological challenges of researching children's experiences of childhood through the lens of participatory video.' *International Journal of Social Research Methodology*, 14(3) pp. 231-243.

Lorimer, J. (2010) 'Moving Image Methodologies for more-than-human geographies.' *Cultural Geographies,* 17(2) pp. 237-258.

Macdonald, S. (2001) 'British Social Anthropology.' *In* Atkinson, P. E. A. (ed.) *Handbook of Ethnography*. London: Sage, pp. 60-73.

Macdougall, D. (2011) 'Anthropological filmmaking: An empirical art.' *In* Margolis, E.

and Pauwels, L. (eds.) *The SAGE handbook of visual research methods*. London: SAGE.

MacLure, M. (2003) *Discourse in educational and social research.* Buckingham: Open University.

MacLure, M. (2006) 'The bone in the throat: Some uncertain thoughts on baroque method.' *International Journal of Qualitative Studies in Education*, 19(6) pp. 729-745.

MacLure, M. (2010) 'The offence of theory.' *Journal of Education Policy*, 25(2) pp. 277-286.

MacLure, M. (2011) 'Qualitative Inquiry: Where Are the Ruins?' *Qualitative Inquiry*, 17(10) pp. 997-1005.

MacLure, M. (2013a) 'Response to Hekman: 'Subject Matters: The evolution of the subject in feminist theory'. *Developing Post-Constructivist Qualitative Research Methodologies in the Educational Sciences Conference*. Stockholm, Sweden:

MacLure, M. (2013b) 'Classification or wonder? Coding as an analytic practice in qualitative research.' *In* Ringrose, J. and Coleman, R. (eds.) *Deleuze and Research Methodologies*. Edinburgh: Edinburgh University Press,

MacLure, M. (2013c) 'researching without representation? Language and materiality in post-qualitative methodology.' *International Journal of Qualitative Studies in Education*, 26(6) pp. 658-667.

MacLure, M. (2013d) 'The Wonder of Data.' *Cultural Studies ↔ Critical Methodologies*, 13(4) pp. 228-232.

MacLure, M. (2015) 'Coda.' *Discourse, Studies in Cultural Politics of Education,* 37 (5) pp. 798-800.

MacLure, M. (2016) 'The Refrain of the A-Grammatical Child: Finding Another

Language in/for Qualitative Research.' *Cultural Studies Critical Methodologies*, 16(2) pp. 173-182.

MacLure, M., Holmes, R., Jones, L. and MacRae, C. (2010a) 'Silence as Resistance to Analysis: Or, on Not Opening One's Mouth Properly.' *Qualitative Inquiry*, 16(6) pp. 492-500.

MacLure, M., Holmes, R., MacRae, C. and Jones, L. (2010b) 'Animating classroom ethnography: overcoming video-fear.' *International Journal of Qualitative Studies in Education*, 23(5) pp. 543-556.

MacLure, M., Jones, L., Holmes, R. and MacRae, C. (2012) 'Becoming a problem: behaviour and reputation in the early years classroom.' *British Educational Research Journal*, 38(3) p. 477.

Mannay, D (2010) Making the familiar strange: Can visual research methods render the familiar setting more perceptible. Qualitative Research, 10 (1) pp. 91 - 111

Manning, E. (2015) 'Against Method.' *In* Vannini, P. (ed.) *Non-Representational Methodologies, Re-Envisioning Research*. Oxon: Routledge.
Manning, E. (2016) *The Minor Gesture.* Durham: Duke University Press.

Manning, E. and Massumi, B. (2014) *Thought in the act: Passage in the ecology of experience.* Minneapolis: University of Minnesota Press.

Manning, E. and Massumi, B. (2015) 'Toward a Process Seed Bank: What Research-Creation Can Do.' *Journal of the New Media Caucus*, 11(3).

Marey, E. J. (1874) *Animal Mechanism: a treatise on terrestrial and aerial locomotion.* London: Henry S. King and Co.

Margolis, E. and Pauwels, L. (2011) *The SAGE handbook of Visual Research Methods.* London: SAGE.

Marks, L. (2000) *The Skin of the Film, Intercultural Cinema, Embodiment, And The Senses.* USA: Sage.

Marks, L. (2011) 'Calligraphic Animation: Documenting the Invisible.' *Animation Journal*, 6(3) pp. 307-323.

Marsh, J. (2004) 'The techno-literacy practices of young children.' *Journal of early childhood research*, 2(1) pp. 51-66.

Masny, D. and Semetsky, I. (2013) *Deleuze and education.* Deleuze connections. Edinburgh: Edinburgh University Press.

Massumi, B. (2002) *Parables for the virtual: movement, affect, sensation.* Durham, NC: Duke University Press.

Massumi, B. (2012) *A shock to thought: Expression after Deleuze and Guattari.* New York, NY: Routledge.

Mazzei, L. A. (2007) *Inhabited silence in qualitative research: putting post-structural theory to work.* New York: Peter Lang.

Mazzei, L. A. (2013) 'Materialist Mappings of Knowing and Being: Researchers Constituted in the Production of Knowledge.' *Gender and Education*, 25(6) pp. 776-785.

Mazzei, L. A and McCoy, K. (2010) 'Thinking with Deleuze in Qualitative Research.' *International Journal of Qualitative Studies in Education*, 23(5) pp. 503-509.

Millei, Z. and Kallio, K. P. (2016) 'Recognising Politics in the Nursery: Early childhood education institutions as sites of mundane politics.' *Contemporary Issues in Early Childhood*, 19(1) pp. 31-47.

Moten, F. and Harney, S. (2013) *The Undercommons: Fugitive Planning and Black Study.* New York: Minor Compositions.

Murris, K. (2016) *The Post-human Child - Educational transformation through philosophy with picture books.* Abingdon, Oxon: Routledge.

Olsson, L. M. (2009) *Movement and experimentation in young children's learning: Deleuze and Guattari in early childhood education.* London: Routledge.

Olsson, L. M. (2013) 'Taking Children's Questions Seriously: the need for creative thought.' *Global Studies of Childhood*, 4(2) p. 230.

Otterstad, A. M. and Lorvik Waterhouse, A. H. (2016) 'Beyond regimes of signs: making art/istic portrayals of haptic moments/movements with child/ren/hood.' *Discourse: Studies in the Cultural Politics of Education*, 37(5) pp. 739-753.

Parikka, J. (2012) 'New Materialism as Media Theory: Medianatures and Dirty Matter.' *Communication and Critical/Cultural Studies*, 9(1) pp. 95-100.

Parker, S. and Calzettoni, F. (1995) *The Lumière brothers and the cinema.* London: Belitha.

Pauwels, L. (2011) 'An Integrated Conceptual Framework for Visual Social Research.' *In* Margolis, E. and Pauwels, L. (eds.) *The SAGE Handbook of Visual Research Methods*. London: Sage.

Pearce, C. and MacLure, M. (2009) 'The wonder of method.' *International Journal of Research & Method in Education*, 32(3) pp. 249-265.

Pelias, R. (2011) *Leaning, A Poetics of Personal Relations.* New York: Left Coast Press Inc.

Pink, S. (2007) *Doing visual ethnography: images, media and representation in research (2nd Ed.).* London: SAGE.

Pink, S. (2009) *Doing sensory ethnography.* London: SAGE.

Pink, S. (2011) 'Multimodality, multisensoriality and ethnographic knowing: Social semiotics and the phenomenology of perception.' *Qualitative Research*, 11(3) pp. 261-276.

Pink, S. (2013) *Doing visual ethnography (3rd Ed.)* London: Sage Publications Ltd.

Pink, S. and Leder-Mackley, K. (2013) 'Saturated and Situated: expanding the meaning of media in the routines of everyday life.' *Media, Culture & Society*, 35(6) pp. 677-691.

Pool, S. and Pahl, K. (2011) 'Living your life because it's the only life you've got.' *Qualitative Research Journal*, 11(2) pp. 17-37.

Procter, L. (2013) 'Exploring the role of emotional reflexivity in research with children.' *Emotion, Space and Society*, 9 pp. 80-88.

Prout, A. (2000) *The Body, Childhood and Society.* London: Macmillan Press Ltd.

Prout, A. (2005) *The Future of Childhood.* Oxon: RoutledgeFalmer.

Rajchman, J. (2000) *The Deleuze Connections.* Cambridge: MIT Press.

Rautio, P. (2013) 'Children who carry stones in their pockets: On autotelic material practices in everyday life.' *Children's Geographies*, 11(4) pp. 394-408.

Rautio, P. and Jokinen, P. (2015) 'Children's relations to the More-Than-Human world Beyond Developmental Views.' *In* Evans, B., Horton, J. and Skelton, T. (eds.) *Play, Recreation, Health and Well Being: Geographies of Children and Young People*. Vol. 9. Singapore: Springer.

Rautio, P. and Winston, J. (2015) 'Things and children in play - improvisation with language and matter.' *Discourse: Studies in the Cultural Politics of Education*, 36(1) pp. 15-26.

Rautio, P. and Millei, Z. (2017) ''Overspills' of research with Children: an argument for slow research.' *Children's Geographies*, 0(0) pp. 1-12.

Ringrose, J. (2011) 'Beyond Discourse? Using Deleuze and Guattari's schizoanalysis to explore affective assemblages, heterosexually striated space, and lines of flight online and at school.' *Educational Philosophy and Theory*, 43(6) pp. 598-618.

Ringrose, J. and Coleman, R. (2013) *Deleuze and research methodologies. Deleuze connections*. Edinburgh: Edinburgh University Press.

Robson, S. (2011) 'Producing and using video data in the early years: Ethical questions and practical consequences in research with young children.' *Children and Society*, 25(3) pp. 179-189.

Rose, G. (2010) *Doing Family Photography: The Domestic, the Public, the Politics of Sentiment.* London: Routledge.

Rose, G. (2012) *Visual methodologies: an introduction to researching with visual materials (3rd Ed.).* London: SAGE.

Rose, G. (2016) *Visual Methodologies, An Introduction to Researching with Visual Materials* (4th Ed.). London: Sage.

Rosiek, J. (2013) 'Pragmatism and Post-Qualitative Futures.' *International Journal of Post-Qualitative Studies in Education*, 26(6) pp. 692-705.

Ruppert, E., Law, J. and Savage, M. (2013) 'Reassembling Social Science Methods: The challenge of digital devices.' *Theory, Culture & Society*, 30(4) pp. 22-46.

Sauvagnargues, A. (2016) *Artmachines: Deleuze, Guattari, Simondon*. Translated by S. Verderber with E. W. Holland. Edinburgh: Edinburgh University Press Ltd.

Schneider, A. and Pasqualino, C. (2014) *Experimental film and anthropology.* London: Bloomsbury Press.

Sellers, M. (2010) 'Re(con)ceiving young chidren's curricular performativity.' *International Journal of Qualitative Studies in Education*, 23(5) pp. 557-577.

Semetsky, I. and Masny, D. (2013) *Deleuze and Education.* Edinburgh: Edinburgh University Press.

Seymour, J., Procter, L. and Hackett, A. (2015) *Children's spatialities: embodiment, emotion and agency.* Houndmills, Basingstoke Hampshire; New York, NY: Palgrave Macmillan.

Shaw, J. (2007) Including the excluded: collaborative knowledge production through participatory video. *In,* Dowmunt, T, Dunford, M & Van Hamart, N (Eds) *Inclusion through Media* (pp 180 – 191). London: Goldsmiths

Somerville, M. (2016) ''The Post-human I': encountering 'data' in new materialism.' *International Journal of Qualitative Studies in Education*, 29(9) pp. 1161-1172.

Springgay, S. and Rotas, N. (2014) 'How do you make a classroom operate like a work of art? Deleuzeguattarian methodologies of research-creation.' *International Journal of Qualitative Studies in Education*, 28(5) pp. 552-572.

Springgay, S. and Truman, S. (2017) 'On the Need for Methods Beyond Proceduralism: Speculative Middles, (In)Tensions, and Response-Ability in Research.' *Qualitative Inquiry*, 0(0) pp. 1-12.

St. Pierre, E. A. (2010) 'Methodology in the fold and the irruption of transgressive data.' *International Journal of Qualitative Studies in Education*, 10(2) pp. 175-189.

St.Pierre, E. A (2011) 'Post Qualitative Research: The Critique and the Coming After.' *In* Denzin, N. and Lincoln, Y. (eds.) *The SAGE handbook of Qualitative research*. 4 ed., London: Sage,

St. Pierre, E. A. (2013a) 'Ethics in entanglement.' *Knowledge Cultures*, 1(5) p. 141.

St. Pierre, E. A. (2013b) 'The Appearance of Data.' *Cultural Studies ↔ Critical Methodologies*, 13(4) pp. 223-227.

St. Pierre, E. A. (2013c) 'The posts continue: Becoming.' *International Journal of Qualitative Studies in Education*, 26(6) pp. 646-657.

St Pierre, E. A. (2014) 'Ethics in entanglement.' *Knowledge Cultures,* 1(5) pp. 141-141.

St. Pierre, E. A. (2014) 'A Brief and Personal History of Post Qualitative Research.' *Journal of Curriculum Theorizing*, 30(2) pp. 2-19.

St. Pierre, E. A. and Pillow, W. (2002) *Working the ruins: feminist post-structural theory and methods in education.* Hoboken: Taylor and Francis.

St.Pierre, E. A., Jackson, A. and Mazzei, L. (2016) 'New Empiricisms and New Materialisms Conditions for New Inquiry.' *Cultural Studies Critical Methodologies*, 16(2) pp. 99-110.

Stewart, K. (2007) *Ordinary Affects.* London: Duke University Press.

Stirling, E. and Yamada-Rice, D. (2015) *Visual methods with children and young people: academics and visual industries in dialogue.* Houndmills, Basingstoke Hampshire; New York, NY: Palgrave Macmillan.

Strom, K. (2015) 'Teaching as Assemblages: Negotiating Learning and Practice in the First Year of Teaching.' *Journal of Teacher Education*, 66(4) pp. 321-333.

Stronach, I. and MacLure, M. (1997) *Educational research undone: the postmodern embrace.* Buckingham: Open University Press.

Taylor, C. (2014) 'Telling transitions: Space, materiality and ethical practices in a collaborative writing workshop.' *Cultural Studies*, 14(4) pp. 396-406.

Taylor, C. (2016) 'Edu-crafting a Cacophonous Ecology: Posthumanist Research Practices for Education.' *In* Taylor, C. and Hughes, C. (eds.) *Posthuman research practices in education*. Basingstoke: Palgrave Macmillan, pp. 5-24.

Taylor, C. (2017) 'Re-thinking the empirical in Higher Education: Post qualitative inquiry as a less comfortable social science.' *International Journal of Research and Method in Education*, 40(3) pp. 311-324.

Taylor, C. and Hughes, C. (2016) *Posthuman research practices in Education.* Basingstoke: Palgrave Macmillian.

Thomson, P. (2008) *Doing Visual Research with Children and Young People.* Oxon: Routledge.

Tiainen, M., Kontturi, K. K. and Ilona, H. (2015) 'Framing, Following, Middling - Towards Methodologies of Relational Materialities.' *Cultural Studies Review*, 21(2) pp. 14-46.

Tobin, J. and Hsueh, Y. (2007) 'The Poetics and Pleasure of video ethnography of education.' *In* Goldman, R., Pea, R., Barron, B. and Derry, S. J. (eds.) *Video Research in the Learning Sciences*. Oxon: Routledge.

Truman, S. and Springgay, S. (2015) 'The Primacy of Movement in Research Creation: New Materialist Approaches to Art Research and Pedagogy.' *In* Lewis, T. and Laverty, M. (eds.) *Arts Teaching, Teaching Art. Contemporary Philosophies and Theories in Education*. Vol. 8. Dordrecht: Springer.

Truman, S. and Springgay, S. (2016) 'Propositions for Walking Research.' *In* Powell, K., Bernard, P. and Mackinley, L. (eds.) *International Handbook for Intercultural Arts*. New York, NY: Routledge, pp. 259-267.

Wanono, N. (2014) 'From the grain to pixel, aesthetic and political choices.' *In* Schneider, A. and Pasqualino, C. (eds.) *Experimental Film and Anthropology*. London: Bloomsbury.

White, H. (2009) *The Content of Form: Narrative Discourse and Historical Representation.* Maryland, USA: The Johns Hopkins University Press.

Wilson, G. (2016) 'Examining the difference between the use of wearable cameras and traditional cameras in research - a research note.' *International Journal of Social Research Methodology*, 20(5) pp. 525-532.

Winnicott, D. (1951) *Transitional Objects and Transitional Phenomena. In Through Paediatrics to Psycho-analysis,* New York: Basic Books.

Winnicott, D. (1953) 'Transitional objects and transitional phenomena.' *The International journal of psycho-analysis*, 34, p. 89-103

Winnicott, D. (1971) *Playing and Reality.* Oxon: Routledge.

Yamada-Rice, D. (2011) 'New media, evolving multi modal literacy practices and the potential impact of increased use of the visual mode in the urban environment on young children's learning.' *Literacy*, 45(1) pp. 32-43.

Zylinska, J. (2016) 'The creative power of non-human photography.' *In* Kuc, K. and Zylinska, J. (eds.) *Photomediations*. London: Open Humanities Press.